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GLEANINGS IN BEE CULTURE

VOL. XXXII.

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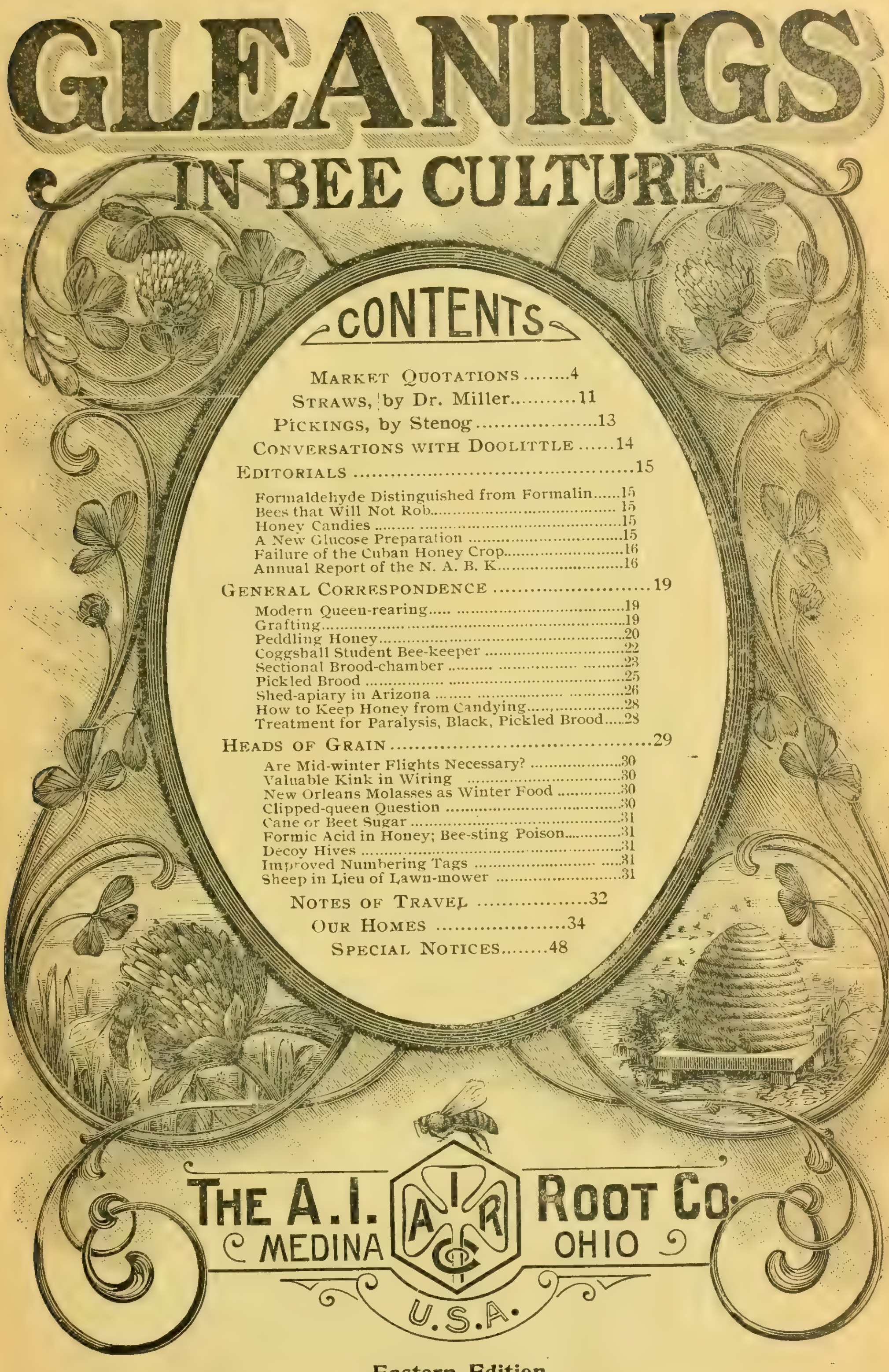

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Office and Salesroom, 2146 and 2148 Central Ave
Warehouse, Freeman and Central Aves.

CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The market on comb honey has weakened, as the supply has been larger than the demand. Quote fancy water-white at 14; off grades, lower. Extracted, amber, in barrels, 5¼ @ 5¾ cts; 60-lb. cans bring ½c more; alfalfa, water-white, 6@6½; fancy white-clover, 7@8. Beeswax, good demand, 30c for nice, delivered. C. H. W. WEBER.

Dec. 18. 2146 Central Ave., Cincinnati, Ohio.

TORONTO.—Honey market remains very much the same. Comb honey is still the favorite article with the majority. Chunk honey is asked for sometimes, but very little offered. Prices of comb are as follows: Fancy, $1.75@$2.00 per dozen; No. 1, $1.50@$1.75; No. 2, $1.40@$1.50. This sells retail in the stores at, fancy, 25; No. 1, 20; No. 2, 15, each section. Extracted honey in large lots, first quality, 6½@7½, put up in barrels or 60-lb. cans; 5 lb. and 10-lb. tins, at 7½@8. This retails at 10c per lb., pail included. The department store here sells quite a lot of honey, usually at 10c per lb., 10-lb. tin for $1.00; but occasionally they offer special bargains, selling 10 lb. tins for 90c, tins included.

Dec. 12. E. GRAINGER & CO., Toronto, Ont.

DENVER.—Market on both comb and extracted honey is quiet, with sufficient stocks on hand to meet the requirements of the local markets for some time. Strictly fancy white comb, per case of 24 sections, $2.75@$3.00. No. 1 white comb, $2.50@2.75; light amber comb, $2.25@$2.50. There is practically no sale for partly candied comb honey, and such will not bring more than $2.00 per case. Extracted, white, 7½@7¾; light amber, 6¾@7¼. Beeswax wanted at 26c for good clean yellow stock.

THE COLORADO HONEY PRODUCERS' ASS'N,

Dec. 11. Denver, Col.

COLUMBUS.—We are pleased to report a very satisfactory market on honey, but with a lighter demand. Prices range from 13@15 on white, 11@13 on amber, and 10 on buckwheat. We are in shape to handle both large and small shipments.

EVANS & TURNER,

Dec. 19. Columbus, Ohio.

PHILADELPHIA.—Honey is arriving quite freely. We are now in the height of the honey season, and there is a big demand for it, but it does not last long. We are getting fancy prices and fancy comb; 17c for fancy white; 15c for No 1; 13c for amber and buckwheat. Extracted in fair demand; 7c for white, 6 for amber. Beeswax in good demand — 32 for bright yellow. We are producers of honey, and do not handle on commission. WM. A. SELSER,

Dec. 21. 10 Vine St., Philadelphia, Pa.

KANSAS CITY.—Instead of our honey market improving, it has grown worse so far as comb is concerned. The receipts have increased and fancy comb and No 1 have been sold as low as $2.50 per case of 24 sections. We do not look for any improvement in prices before February, if then. We quote fancy, white comb, 24-section cases, $2.60; No. 1, comb 24-section cases $2.50; No 2 comb, 24-section cases, $2.40. Extracted, white, per lb., 7@7½; amber, 6@6½. Beeswax, 25@28. C. C. CLEMONS & CO.,

Dec. 30. Kansas City, Mo.

SAN FRANCISCO.—New comb, per lb., white, 12@14; amber, 10@12; extracted, water-white, 5½@6; light-amber, 5@5½; dark, 4½@5. Beeswax, 26@28.

ERNEST B. SCHAEFFLE,

Dec. 22. Murphys, Cal.

ALBANY.—Honey market is dull and lower, with holders urging sale, and dealers pretty well filled up and cold weather cracking the honey and lessening the demand. Bee keepers make a great mistake in not marketing their honey early in the season when all conditions are favorable. We can quote only nominal prices now for comb honey in good order, for we have to make concessions from any prices in order to sell. Fancy, white, 15; No. 1 13@13½; any thing else 10@13, according to how we strike customers.

MACDOUGAL & CO.,

Dec. 18. 375 Broadway, Albany, N. Y.

TOLEDO.—The honey market is as quiet as usual at this time of the year but we look for a better demand after the holidays. Prices, however, remain the same as last advice. GRIGGS BROS.

Dec. 21. Toledo, O.

SCHENECTADY.—Honey market very quiet and the prices lower; 15c is the top for fancy white; white grades a little off, sell at 12@14; buckwheat, 12@13. Extracted is moving very slowly, and we do not look for any better conditions until the middle of next month. CHAS McCULLOCH,

Dec. 19, 1903. Schenectady, N. Y.

MILWAUKEE.—The condition of this market for honey is not far removed from where we stood at last report. The supply is generous, and generally good quality. Demand is not as good as we desire, yet we are now looking for improved demand as the new year opens and the holiday trade in the fancy-goods line is over; then the good people will be wise enough to buy and eat honey. We quote fancy sections, 13@14; A No. 1, 12½@13; extracted in barrels, pails, and cans, white, 6½@8; dark, 6½@7½. Beeswax, 28@30.

A. V. BISHOP & CO.,

Dec. 16. 119 Buffalo St., Milwaukee, Wis.

BUFFALO.—Our market on honey is very slow and draggy. It is not because prices are high. It is all owing to a lack of demand. I think the retail grocers ask too much, and people do not buy because the price is too high. Fancy, white comb, 13½@14; A No. 1, white comb, 13@13½; No. 1, white comb 12½@13; No. 2, 11@12; No 3, white comb, 10@11; No. 1 dark comb, 11@12; No. 2 dark comb, 10@11; white extracted, 6½@7; dark extracted, 5@6. Beeswax, 28@32.

W. C. TOWNSEND,

Dec. 28. 178 & 180 Perry St., Buffalo, N. Y.

BOSTON.—The demand for honey continues good with an ample supply of comb and a light supply of extracted. We quote: Fancy white comb, 16@17; No. 1 14@15, and practically no No. 2 to offer. Extracted, 7@8, as to quality. BLAKE, SCOTT & LEE,

Dec. 21. Boston, Mass.

FOR SALE.—720 lbs. of white clover honey in 60 lb. cans, at 7 cts. H. VAN VRANKEN,

Union City, Mich.

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.

G. W. WILSON, R. R. No 1, Viola, Wis.

FOR SALE.—Choice white alfalfa honey in Aikin honey-bags, at 8c per lb. In cans, same price. Amber honey, in cans, 7c.

J. A. GREEN, Grand Junction, Col.

FOR SALE.—Thirty barrels choice extracted white-clover honey. Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER,

Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,

301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Clover or buckwheat extracted honey, in 165-lb. kegs. Write for prices. Sample 8c.

C. B. HOWARD, Romulus, N. Y.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,

265-267 Greenwich St., New York.

For Sale.—1000 lbs. No. 1 white comb, at 11c, and 2000 lbs. No. 1 extracted, at 7½c W. D. Soper,
Route 3, Jackson, Mich.

For Sale.—5000 lbs. of fine comb and extracted honey, mostly all comb. L. Werner,
Box 387. Edwardsville, Ill.

For Sale.—Fancy basswood and white-clover honey; 60 lb cans 8c; 2 cans or more, 7¼c; bbls., 7½c.
E. R. Pahl & Co., 294 Broadway, Milwaukee, Wis.

For Sale.—Fancy and A No. 1 comb honey from alfalfa, in Danzenbaker 4 x 5 sections. Write for prices. Wm. Morris, Route 1, Las Animas, Col.

Wanted—Comb and extracted honey. State price, kind, and quantity. R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

Wanted.—Honey. Selling fancy white, 15c; amber, 13c We are in the market for either local or car lots of comb honey. Write us. Evans & Turner,
Columbus, Ohio.

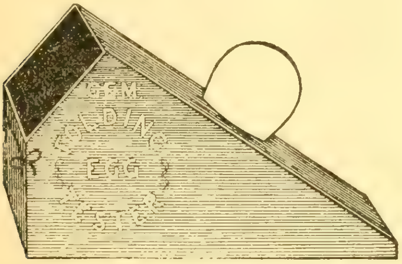
Wanted.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.
Thos. C. Stanley & Son,
Fairfield Ill., or Manzanola, Colo.

Wanted.—Beeswax; highest market price paid. Write for price list.
Bach, Becker & Co., Chicago, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer. Seavey & Flarsheim,
1318—1324 Union Avenue, Kansas City, Mo.

An Egg-tester Free.

The Gem folding egg tester, as shown below, is a most useful apparatus constructed in a really ingenious and scientific manner. It will tell you whether an egg is fresh, stale, or bad. This tester can be used in the day time as well as at night. It will never get out of order, and will, when handled with ordinary care, last a lifetime. A whole case of eggs can be tested in five minutes, and the tester will report the exact condition of the eggs with a promptness that never fails.



A limited number of these testers will be given away free: and if you will send to George H. Stahl, Quincy Ill., he will send you one free of charge if you will mention Gleanings in Bee Culture. He will also send you full directions for testing eggs, both for table use and hatching purposes together with a handsome new catalog containing 14 colored views of incubators and brooders, including one showing the "Development of the Chick" from the first to the twenty-first day. Write at once, for the supply is limited.

A Lesson in Advertising.

In their 1904 calendar just received, N. W. Ayer & Son have adhered to their popular conception of a business calendar, but have changed the design and coloring. The size is the same, about fourteen by twenty-eight inches, with large readable dates, but the clay modeled design printed in sepia tints gives more prominence to their well-known motto, "Keeping Everlastingly At It Brings Success;" not a bad thing, by the way, for business people, and most other people, to have before them throughout the year.

The blank spaces occurring each month contain terse preachments on business-getting, advertising in general and N. W. Ayer & Son's methods of advertising in particular, the whole forming a very interesting and instructive lesson in productive publicity.

It is generally conceded that this advertising agency annually expends more money for advertising than any other concern of the kind, which fact lends interest to their utterances on the subject.

Requests for this calendar addressed to their Philadelphia office, accompanied by twenty-five cents to cover cost and postage, will be taken care of for the present. Last year the supply lasted barely ten days.

San Francisco, California

Season 1904. Root's Sections, Specialties, Sundries, Danzenbaker Hives, etc., in stock (here exclusively) Jan. 15 for prompt shipment, at prices lower than can be had by dealing direct. Send your orders to us. Also Dadant & Son's Foundation, best Dovetailed Hives on the market, 8 and 10 frame, regulation pattern and furniture. Special prices on quantity orders.

SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California, U. S. A.

Seeds, Trees, Plants, Bulbs.

The best at reasonable prices. Bulbs at bargain prices; 35 grand spring-blooming bulbs, sent, postpaid, for 30 cts. The bulbs and our Hardy Magnolia sent, postpaid, for 50 cts. For 10 cts. will send six packets of our new, early vegetables, SPECIAL, NEW, EXTRA-EARLY VARIETIES.

Send for our Free Bargain List and Catalog. Send us your list of Nursery Stock Plants, Seed Potatoes, Roses, etc., wanted, and we will quote special prices.

Northern-grown Seed Potatoes our specialty.

T. C. Furnas & Co., Indianapolis, Indiana.

BEE JOURNAL FREE

I will give subscriptions to bee journals with bee-supply orders. Cheapest place in Michigan to buy. Send for list explaining.
W. D. SOPER, R. D. 3, Jackson, Mich.

POULTRY JOURNAL How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE.
Inland Poultry Journal, Indianapolis, Ind.

1000 Pounds Beeswax FOR SALE. Address
DR. GEORGE D. MITCHELL, 340 4th St., OGDEN, UTAH.

50 COLONIES BEES FOR $100. Root's queens and hives, 8 and 10 frame, part chaff Good stores.
G. W. RINGLER, - LODI, OHIO.

For Sale at Bargains—Three Incubators; fine, black Minorca Cockrels, 75c to $1 each; tumblered honey, 80c per dozen. G. Routzahn, Biglerville, Pa.

FOR SALE.—75 colonies of bees packed in chaff, on summer stands; also 200 lbs. of comb honey.
Route 3. H. WILBER, Morenci, Mich.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

Gleanings in Bee Culture

(Established in 1873.)

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dep't.
J. T. CALVERT, Bus. Mgr
A. L. BOYDEN, Sec.

F. J. ROOT, Eastern Advertising Representative,
90 West Broadway, New York City.

Terms: $1.00 per annum; two years, $1.50; three years, $2.00; five years, $3.00, *in advance.* The terms apply to the United States, Canada, and Mexico. To all other countries, 48 cents per year for postage.

Discontinuances: The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering

ADVERTISING RATES.

Column width, 2⅜ inches. Column length, 8 inches. Columns to page 2. Forms close 12th and 27th.

Advertising rate 20 cents per agate line, subject to either time discounts or space rate, at choice, BUT NOT BOTH.

Line Rates (*Net*).		Time Discounts.	
250 lines@	18	6 times	10 per cent
500 lines@	16	12 "	20 "
1000 lines@	14	18 "	30 "
2000 lines@	12	24 "	40 "

Page Rates (*Net*).

1 page	$40 00	3 pages	100 00
2 pages	70 00	4 pages	120 00

Preferred position, 25 per cent additional.
Reading Notices, 50 per cent additional.
Cash in advance discount, 5 per cent.
Cash discount, 10 days, 2 per cent.

Circulation Average for 1903, 18,666.

The National Bee-Keepers' Association.

Objects of The Association:

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

Officers:

W. Z. HUTCHINSON, Flint, Mich., President.
J. U. HARRIS, Grand Junction, Col., Vice president.
GEORGE W. YORK, Chicago, Ill., Secretary.
N. E. FRANCE, Platteville, Wis., Gen. Mgr. and Treas.

Board of Directors:

E. WHITCOMB, Friend, Nebraska.
W. Z. HUTCHINSON, Flint, Michigan.
W. A. SELSER, 10 Vine St., Phildadelphia, Pa.
R. C. AIKIN, Loveland, Colorado.
P. H. ELWOOD, Starkville, N. Y.
E. R. ROOT, Medina, Ohio.
UDO TOEPPERWEIN, San Antonio, Texas.
G. M. DOOLITTLE, Borodino, N. Y.
W. F. MARKS, Chapinville, N. Y.
J. M. HAMBAUGH, Escondido, Cal.
C. A. HATCH, Richland Center, Wis.
C. C. MILLER, Marengo, Illinois.

CONVENTION NOTICES.

The annual meeting of the Southeastern Minnesota and Western Wisconsin Bee keepers' Association will meet at Winona, Minn., at the County Commissioners' rooms, in the court-house on Jan 19 and 20. A full attendance of members, and their wives and friends, is solicited.
W. K. BATES, Pres.
Stockton, Minn.

The annual meeting of the New York State Association of Bee-keepers' Societies will be held in the City Hall, Syracuse, on Friday, Jan. 15. N. E. France, W. Z. Hutchinson, and other prominent bee-men will be in attendance. An interesting program is being prepared. All interested in bees are invited to attend. Special rates have been secured at the Manhattan Hotel, for accommodations.
C. B. HOWARD, Sec'y
Romulus, N. Y.

The annual meeting of the Oswego Co. Bee-keepers' Association will be held at Oswego, N. Y., Jan. 12. N. E. France, General Manager of the National, will be present to address the meeting. All interested in bees are invited.
C. B. ALLEN, Sec'y
Central Square, N. Y.

The Michigan State Bee-keepers' Association will hold its annual convention, Thursday and Friday, Feb. 25 and 26, at the Agricultural College. The Michigan State Dairymen's convention will meet at the same place, Tuesday, Wednesday, and Thursday, and the round-up institute of the farmers' institutes will be held at the same place from Feb 23 to 26. One session of the dairymen's convention will be a joint session with the institute, and one session of the bee-keepers' convention will be a joint session with the institute. There will be half fare on all Michigan railroads. Dinner and supper can be secured at the College; but visitors will have to go to Lansing for breakfast and lodging. There is an electric line that takes passengers from the College to Lansing for five cents.
W. Z. HUTCHINSON

Learn Advertising at Home.

The best advertising school is advertising experience; but this comes higher than most of us are able to reach. Yet that need not bar those who are desirous of learning more about advertising from gaining a wider knowledge of this great subject. You may learn about advertising, and what is necessary to make you a successful advertising man, by reading and following the advice given in that bright little monthly magazine, "CLASS ADVERTISING." Through its columns every issue you have the experience of those of recognized ability in the advertising world. It is "true blue and pure gold," devoted largely to advertising in class lines having to do with our great American agricultural interests, with special reference to information along farm machinery, live stock, nursery, seeds, and poultry lines. It is edited by Frank B White, who has been at it seventeen years.

Take advantage of our special bargain-day offer, two years, twenty-four times, fifty cents. Any one number is worth double this sum in sensible, helpful information, good for every one, but especially valuable to those desiring more light on the advertising subject. Sample copy, ten cents. Address CLASS ADVERTISING, Caxton Building, Chicago, Ill.

A Guarantee That Guarantees.

We desire to call special attention to the guarantee made poultry raisers by the Cyphers Incubator Co., Buffalo, N. Y. They warrant their incubators for ten years, and guarantee that they will hatch a larger percentage of fertile eggs and produce more vigorous chicks than any other incubator in the world, at the same time consuming less oil and requiring less attention. As the guarantee is backed by a large and responsible company, it certainly means something to our readers. They agree to refund the purchase price in case the purchaser does not get satisfactory results. The Cyphers incubator, as is now well known, is constructed on a patented principle entirely different from any other machine on the market; it is absolutely self-ventilating, self-regulating, requires no supplied moisture, is automatic in action and has the most sensitive and accurate regulator made.

The company carries in addition a full line of "poultryman's necessities," standard articles specially prepared for the poultryman who wants to make money. They will send their new complete catalog for 1904 free if you tell them that you are one of our readers.

I. J. Stringham, New York,

keeps in stock several car-loads of Apiarian Supplies of the latest patterns, and would be pleased to mail you his 1904 catalog. Bees in season.

Apiaries, Glen Cove, L. I. Sales Rooms, 105 Park Pl., New York.

This space is reserved for

JOHN M. DAVIS, The Tennessee Queen-breeder.

QUEENS! ATTENTION! QUEENS!

During 1904 we will raise and offer you our best queens. Untested, $1.00 each; $5.00 for 6; $9.00 for 12 Tested queens, $1.50 each; best breeders, $5 00 each. One, two, and three frame nuclei a specialty. Full colonies, and bees by the car-load. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy-Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18, Beeville, Tex.**

GLEANINGS IN BEE CULTURE

AND

The AMERICAN BEE JOURNAL

(If you are not now a subscriber to the American Bee Journal.)

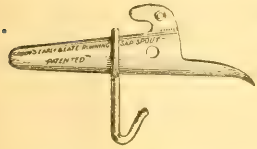
BOTH ONE YEAR FOR ONLY $1.60.

WE HAVE made arrangements with the publishers of The American Bee Journal (issued weekly), so that we can furnish that magazine with Gleanings in Bee Culture—both **one year for but $1.60;** provided you are not now a subscriber to The American Bee Journal.

This is a magnificent offer, and should be taken advantage of by all of our readers who are not now getting The American Bee Journal regularly. These papers, although on the same subject, are conducted so differently, and contain such a variety of reading matter, that every bee-keeper should have them both. And they can be had for a whole year for $1.60. Address all orders to

The A. I. ROOT COMPANY,

MEDINA, OHIO.



Maple-Sugar Makers, Get Out of Old Rut. It Pays. "No Risk."

THE GRIMM Sap spout, Tapping Tools, and Covers are perfect. Guaranteed increase in yield more than pays the investment in one season. Otherwise return purchase at my expense. Only one bore. No injury to trees, and better quality. Proper tapping only possible with the Grimm system. System and samples free. **Don't Delay Ordering.** . . . .

G. H. GRIMM, = = = Rutland, Vt.

Fruit-growers read the best fruit-paper. SEND TEN CENTS and the names and addresses of ten good fruit growers to **SOUTHERN FRUIT GROWER,** Chattanooga, for six months' trial subscription. Regular price 50 cents. Best authority on fruit-growing. Sample free if you mention this paper.

Over 15 Months 68 Copies for only $1.

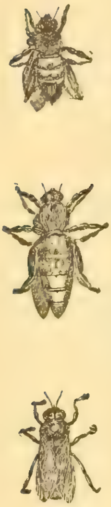
To a New Subscriber to the **WEEKLY AMERICAN BEE JOURNAL.**

To *new* subscribers for 1904 (at $1.00) we will send all the numbers of the Bee Journal (so long as they last,) **if requested,** containing the

Los Angeles Convention Report of the——
——National Bee-Keepers' Association.

This will be over a quarter of a year's numbers FREE, or 68 copies in all, for only a dollar. Now is the time to subscribe.

See the December numbers of Gleanings for what the Weekly American Bee Journal contains.



The cut is the full size of the Knife. Your Name and Address on one side, and these three Bees on the other side.

A Solid Gold Fountain Pen.

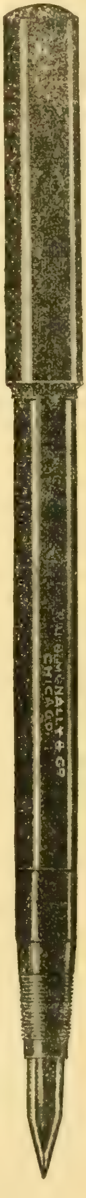
Finally, we have found a good Fountain Pen that is reasonable in price, The manufacturers of this Pen say that if you pay more than $1.25 for other fountain pens, it's for the name.

This Pen is absolutely guaranteed to work perfectly, and give satisfaction. The Gold Nibs are 14 kt, pointed with selected Iridium. The Holders are pure Para Rubber, handsomely finished. The simple feeder gives a uniform flow of ink. Each pen is packed in a neat box, with directions and Filler.

How To Get This Fountain Pen.

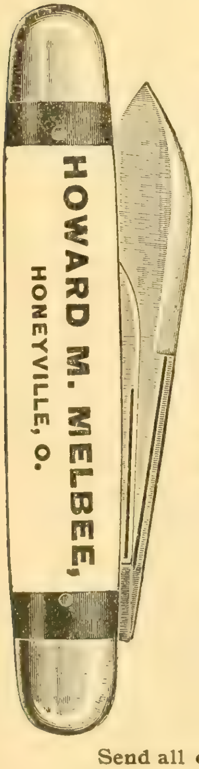
We send it postpaid for $1.25, by return mail, or with the Weekly American Bee Journal a whole year, for $2.00.

This Fountain Pen would be a splendid gift to a friend or relative. Why not order both Pen and Journal for some bee-keeper as a present?



The cut shows the full size of the Pen.

The Novelty Pocket-Knife.



Your Name on the Knife.—When ordering, be sure to say just what name and address you wish put on the Knife.

The Novelty Knife is indeed a novelty. The novelty lies in the handle. It is made beautifully of indestructible culluloid, which is as transparent as glass. Underneath the celluloid, on one side of the handle, is placed the name and residence of any one desired, and on the other side pictures of a Queen, Drone and Worker, as shown here.

The Material entering into this celebrated knife is of the very best quality; the blades are hand-forged out of the very finest English razor-steel, and we warrant every blade. The bolsters are made of German silver, and will never rust or corrode. The rivets are hardened German silver wire; the linings are plate brass; the back springs of Sheffield spring steel, and the finish of the handle as described above. It will last a life-time, with proper usage.

Why Own the Novelty Knife? In case a good knife is lost, the chances are the owner will never recover it; but if the "Novelty" is lost, having name and address of owner, the finder will return it; otherwise to try to destroy the name and address, would destroy the knife. If traveling, and you meet with a serious accident, and are so fortunate as to have one of the "Novelties," your POCKET KNIFE will serve as an identifier: and in case of death, your relatives will at once be notified of the accident.

How appropriate this knife is for a present! What more lasting memento could a mother give to a son, a wife to a husband, a sister to a brother, or a lady to a gentleman, the knife having the name of the recipient on one side?

The accompanying cut gives a faint idea, but cannot fully convey an exact representation of this beautiful knife, as the "Novelty" must be seen to be appreciated.

How to Get this Valuable Knife.—We send it postpaid for $1.25, or with the Weekly American Bee Journal for one year, both for $2.00.

Please allow about two weeks for your Knife order to be filled.

☞ To those new subscribers who take either the Knife or Pen with the Weekly American Bee Journal (at $2 00), we will also send the back numbers beginning with the National Convention Report, as stated above, so long as they last.

Sample Copy of Bee Journal free for the asking.

Send all orders to **GEORGE W. YORK & CO.,**
144 & 146 E. Erie St., CHICAGO, ILL.

WE OUTGREW OUR OLD QUARTERS!

The growing demands of a RAPIDLY INCREASING BUSINESS have moved us. We are now located at

51 WALNUT STREET.

We have increased facilities, and a new, well-supplied up-to-date stock. Every thing that bee-keepers need and demand. **The Best Bee Supplies in America.** Special discount for early orders Send for catalog. Queen bees and nuclei in season.

THE FRED W. MUTH CO., 51 Walnut St., Cincinnati, O.

BEWARE THE RUT!

Are you making money out of bees? You may some years, but do you every year? Even if you do, couldn't you make still more? Aren't there some radical changes that might be made which would make your business still more profitable, and place it upon a more substantial basis?

Perhaps you are keeping about the same number of bees year after year, managing them in the same way each succeeding year, and getting results that seldom reach the high-water mark. In short, did it ever occur to you that possibly you might have fallen into a rut? If you have, wouldn't you like to know it and be helped out?

The Bee-keepers' Review is leading and encouraging bee keepers to consider earnestly their conditions, with a view to their improvement by radical changes —even to a change of location if necessary it is even turning its attention to the looking-up of good locations.

If you are keeping a few bees, or struggling along, scarcely "making both ends meet," by the management of a single apiary, the reading of the Review for the coming year may suggest such changes that will lift your feet out of the rut, and place them upon the mountain-top of prosperity.

For instance, the Review is about to make a specialty of publishing articles from men who have developed systems, methods, and short-cuts whereby one or two men have managed several apiaries, and **made money.** To begin with, Mr. E. D. Townsend, who manages an apiary by only three or four visits a year, will begin in January a series of articles giving his methods in detail. Mr. E. F. Atwater, of Boise, Ida., who, last year, with one helper, managed 11 apiaries, scattered about from 7 to 16 miles from home, will also have a long article in the January issue.

Special Offer--There are still on hand from 75 to 100 sets of back numbers for 1903, and, as long as they last, a set will be sent free to every one who sends $1.00 for the Review for 1904. These back numbers contain a lot of useful information, and — a man can not know too much about his business.

W. Z. HUTCHINSON,

Flint, Mich.

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.

Our New Catalog is Now Ready.

Sixty-eight Pages

Illustrating, describing, and listing all of the standard, finest, and up-to date articles used by

Bee-keepers.

SEND FOR A COPY AT ONCE.

Discount for Early Orders!

Three Per Cent During January.

Lewis' One-piece Highly Polished Sections are Perfect. Fifteen Million Sold Last Year.

All parts of our hives are made to fit accurately; perfect workmanship and finest material. No trouble to set them up; our customers say it is a pleasure. We are not selling goods on **Name Only**, but on their quality.

Twenty Thousand additional square feet of floor space just added to our plant. We have over 45,000 square feet of floor space. We certainly can take care of your orders promptly—Remember that.

Two New Features.

Our Acme Hive, the shallow-body style, simple and cheap. **Our New Wisconsin Hive,** front portico, and the same inside arrangement as the regular Dovetailed.

One of Many.

New Haven, Ia., June 27, 1903.

G. B. LEWIS CO., Watertown, Wis.

GENTLEMEN:—I must say something in regard to the goods you have sent me. They are very good, and I received them in fine condition, and consider same cheap. Some people make their own hives, but I think this is a foolish plan when you can get goods like these, well made, neatly finished, and in such perfect condition. I have used 1000 sections and find every thing all right. If anybody wants to know where to send for the best bee-supplies tell him to write to me. BENNIE DIEDERICH.

Complete List of Agencies Will Be Found in Catalog.

G. B. Lewis Company,

Manufacturers Bee-keepers' Supplies,

Watertown, Wis., - U. S. A.

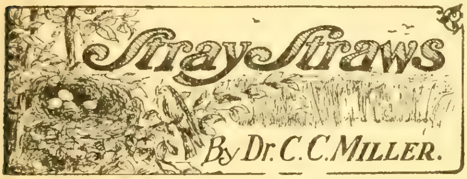
GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO

Vol. XXXII. JAN. 1, 1904. No. 1



Stray Straws

By Dr. C. C. Miller.

THOSE CELL CUPS in wood, p. 1050, what do you furnish them for? [There is soon to be issued a little treatise on queen-rearing by the Root Co., and in this will be a price list of tools, appliances, and materials for the rearing of queens.—ED.]

A CORRESPONDENT asks what I would advise as to hives, frames, etc. For comb honey, single-wall eight-frame hives (ten-frame if they can not have much attention), Miller frames (perhaps Hoffman if no bee-glue) wired or with foundation splints, full sheets of foundation in frames and sections; the same for extracting, only ten frames; possibly shallow frames for extracting-super; cover with dead-air space; deep bottom-boards.

HAS AIKIN, along with other Coloradoans, a monopoly of the paper-bag package? For alfalfa honey seems to be more given to granulating than any other leading sort in this country, and it is possible that other kinds might not work in paper bags—at least not without draining. [It is my personal opinion that Eastern honey should be fully drained before it is put up in bags. In our next issue we will describe an oyster-pail for putting up candied honey.—ED.]

M. A. GILL springs a new thing on us, p. 1055—gives starters to a swarm and gets 95 per cent worker comb. He ought to know—undoubtedly does know—that the bees have on their statute-books a law that, for the first ten or twelve days, a swarm is to build worker comb, and after that a fair amount of drone comb. Now see the unfair advantage that man Gill takes of the bees: he doubles the force of bees, so that in the first ten or twelve days they get their brood-chamber filled, and then when they're ready to build drone comb there's no room for it.

SO YOU'RE GOING to camp on my trail, Mr. Editor, p. 1041. All right, but remember that trails sometimes go in a circle, and it may be well for you to keep an eye out rearward. In the meantime I can be looking up the prices of automobiles. [I will be very moderate in my demands for an automobile. One costing somewhere between $4000 and $5000 would suit me very well. I will buy the plug hat if you will get the auto. Say yes, and we will call it a bargain.—Ed.]

APIS MELLIFICA is mentioned, page 1047. Isn't that *mellifera* nowadays? [*Apis mellifica* is the term used by Cowan and Cheshire in referring to the hive bee, and by Prof. Comstock, of Cornell, in a recent work on entomology. The same term is also recognized by the great Century Dictionary, the International, and the Standard. The only authority that I have run across so far that uses *Apis mellifera* in a late work is Prof. Cook. I can not now find Benton's work; but my impression is he uses *Apis mellifica*. Either is right, but the first is more common.—ED.]

THOS. CHANTRY says, in *American Bee Journal*, "I saw 7 worker-bees backed in a comb as far as their wings would let them at one time; and after killing these 7, I soon killed 23 more that were backed into the same comb. So I came to the conclusion that laying workers are unlimited in number when they get started." That corroborates what a transatlantic scientist proved in an entirely different way: he dissected the bees of a laying-worker colony, and found the most of them contained eggs. I never caught more than one worker in the act of laying, and that was in a worker-cell. It looked so very uncomfortable, with its wings pushed up about its neck, that I don't wonder laying workers prefer larger cells in which to lay. [I think we may now call it pretty well settled that there is apt to be more than one laying worker in a laying-worker colony.

Some little time ago I challenged Dr. Miller for the proof, and I hereby acknowledge its receipt. If any one else has seen a plurality of fertile workers in the act of laying, I wish he would hold up his hand. While we are getting proof, let us have plenty of it.—ED.]

THE *American Bee-keeper* joins the ranks of those who prefer four-piece to one piece sections, and "would prefer to pay the market price for the four-piece style rather than to accept as a gift the folding kind." I wonder, now, I wonder, if it can be that a large number prefer the four-piece. I must confess that I changed to the one-piece, not because I liked them better, but because I wanted to be in the fashion. [If I am not mistaken, this preference for four-piece sections will be found to be confined very largely to certain limited localities—Vermont, New York, and Michigan. There was a time when the one-piece sections had more of a tendency to assume the diamond shape than now, and this was responsible for the preference for the four-piece goods. However, it is pleasant to know there will be a good many who will be perfectly willing to go back to the four-piece sections when the time comes that the lumber for the one-piece is no more to be had except at prohibitive prices.—ED.]

EDITOR HUTCHINSON thinks a plain board cover cleated to prevent warping "is all right for a large majority of localities;" and Editor Root says, "There is nothing better than the old flat cover." I'm much surprised that two men who look as intelligent as they do should talk that sort of stuff. Cleats don't prevent warping; and if they did they can't prevent twisting, and twisting is worse than warping. Besides, we want a cover with a dead-air space, so as to be cooler in summer and warmer in winter. A cover is the last thing about a hive on which to economize. A good cover can't be made without costing something, and it's worth all it costs. [But neither one of us, doctor, intimated that the old flat cover was perfect; for, speaking for myself, I never saw *any* cover of *any* construction that would not warp, twist, or check, somewhat. The plain cleated board for most localities had as few faults as any cover I ever saw; but, as I have already explained, a *single* board is now out of the question for most localities because of its cost.—ED.]

"A CONFINEMENT of six weeks in chaff hives outdoors during the cold weather ought to put the bees into condition where they will stay in the new location if they were moved before they had a fly," p. 1043. Correct. Also, the same in other than chaff hives. Also, in cellar as well as outdoors. Also, in hot as well as—yes, better than—in cold weather, for a much shorter confinement is necessary. In hot weather half a day's confinement or less will make them stay pretty well wherever put, *providing* they do a sufficient amount of worrying trying to get out. [But is it not dangerous, especially for a beginner, to shut up bees in hot weather for moving to a new location? That is, are the bees not liable to suffer from want of air? In forming nuclei, in the springtime and summer, it is our regular practice to shut up the entrances for two or three days, then open them up, at the end of which time the bees will stay with very little difficulty. While this practice would be perfectly safe with very weak colonies, it might cause the loss of some strong stocks treated in a like manner. But, say! we can get around the difficulty by putting on an upper story with a wire-cloth top, then putting a shade-board over the whole. The regular moving screen could be used very well for this purpose. But it is well to bear in mind that those who have full-sized colonies to move a short distance can do it best in winter.—ED.]

GEO. W. PHILLIPS is giving us some interesting stuff about queen rearing, p. 1048. The problem is to know how much of it is for professional queen-rearers and how much for us little fellows who merely rear queens for our own use—for example, that argument, p. 1050, as to the advantage of queen-right colonies. There are times when not one of the four points applies to some of us who are working for honey chiefly. [If one desires to rear his own queens, especially if he wishes to requeen his old apiary, he had better follow the *modus operandi* described, for he will thus save time and also insure a better quality of queens. It may take a little more time with the first batch; but after one has familiarized himself with it he will find it a real pleasure, and an actual saving in time. And then it is true that there are many large bee-keepers who have anywhere from 300 to 1000 colonies, and there are a few whose colonies run up into the 2000 mark. Such bee-keepers can hardly afford to buy all their queens, and therefore it behooves them to use the latest and best methods known to queen rearing science. The general plan outlined by Mr. Phillips is a modification of several plans tested out in an experience in rearing thousands of queens in our own yards. The small bee-keeper may, perhaps, get all the surplus queens he needs from swarming-cells found in some of his best colonies.—ED.]

A CELLAR with no outside door has in southeast corner a bee-room 9×12, with window opening in woodshed under well platform, chaff sack in window. This in New York State. I am asked whether this is ventilation enough. I *think* so, if window is 3 ft. by 1 or larger, and chaff pretty loose. What says ye editor? [This matter of ventilation, I am coming to believe, depends largely on locality. At Medina, which is much warmer than Marengo, I am sure, very sure, that more ventilation is required, because, when it becomes very warm outdoors, considerably above the freezing-point, it is apt to be warm in the cellar. Warmth arouses the activity of the bees, causing a greater consumption of air. If the air is foul, the bees become uneasy, fly out on the cellar bottom, and die. Some late experiments this winter have shown exactly this. We have repeatedly proven, in our locality at least, that fresh air quiets the bees. To answer your question specifically, I will state that the ventilation mentioned, for New York, if in the northern part of the State, might be sufficient through the window opening out under the woodshed. But at Medina, on warm days, the bees would require a good deal more air than could percolate through that chaff cushion. Doolittle and Ira Barber live in localities much colder than ours, and they recommend no ventilation. Mr. Barber especially is clear up in the northern part of the State; and it is possible that in such localities fresh air is more disturbing than the ordinary air in the cellar, because it arouses the bees to activity.—ED.]

MR. PHILLIPS finds that "bees will build drone comb after a swarm is shaken, the same as before." Is that peculiar to Jamaica, or do shaken swarms differ so much from natural ones? It has been given as a rule, perhaps never contradicted, that a natural swarm would build worker comb almost if not quite entirely until half the frames are filled, then more or less drone comb. [This has been referred to Mr. Phillips, who replies: This depends entirely upon conditions, such as the strength of the shaken swarm, the age of the queen it contains, the amount of honey coming in, etc. I shook some 200 strong swarms on starters the last year I was in Jamaica. The result was good so far as honey production was concerned; but, drone comb! As Dr. Miller intimates, there is generally some worker comb built at the tops of the frames; but in some instances the drone comb equals and even exceeds this. I am not prepared to say whether shaken swarms would act in the same manner at Medina, as all of ours were put on full sheets of foundation. In my opinion, however, they would act similarly.—G. W. P.]

A. I. ROOT wants "reports encouraging." Well, here's mine: 124 colonies were increased to 284, and gave 18,466 pounds (20,051 sections) of honey. Putting it just as it was: 100 colonies run for honey gave 184⅔ pounds (200½ sections) per colony; and 24 colonies run for increase gave 666⅔ per cent increase. [This is, indeed, encouraging, and I congratulate you on such an excellent showing; but I think I am safe in saying it is away beyond your general average, season after season.

When I first took charge of the journal we used to have a department called "Reports Encouraging." Nearly every one of our subscribers who had done well would send in his report some time during the season. Those who had obtained only meager results, or who had had a poor season, would, as a rule, keep still, for the average man does not like to parade his failures. In the process of time I noticed we had complaints from our subscribers who said Reports Encouraging did not afford a fair index of the possibilities of bee-keeping, since bee-keepers would not report common or average results, because very few would send in their reports of failures for the department of "Reports Discouraging." My own view of the matter is that the statistical reports that we now gather from bee-keepers from all over the country, who are in position to report for their own locality, summarized and given to the public *just after* the general honey-flow, are of much more value than these occasional reports telling of *good* or *extraordinary* yields. In other words, when one embarks in the business he should not base his expectations on the Reports Encouraging which are above the average, but on the reports based on a series of years or a report covering the entire country, giving the average of what has been done in nearly every portion of the United States.

Now, in saying all this I do think it is interesting and valuable to know what *can* be done and what has been done by expert bee keepers in a good year. Your report is one of the best, for the number of colonies, I ever read for this part of the country. To get an average of nearly 200 lbs. of comb honey per colony is something extraordinary for the Middle and Eastern States. Some parts of the West, especially California, have been known to show up an average of 400 lbs. for each of 500 colonies. Yes, I believe we had one report of an average of 500 lbs. from nearly 100 colonies.

Say, doctor, my, oh my! I note that you had 18,466 lbs., or 20,051 sections. Why didn't you have each of your sections weigh just an even full pound? Why, there must be something "rotten" in Marengo as well as in wicked Chicago—eh?—ED.]

"Pickings from Our Neighbors' Fields
BY
Stenog."

BRITISH BEE JOURNAL.

A correspondent asks the editor what constitutes a suitable place in which to keep honey; and he also wishes to know how to prevent cloudiness after granulation. The editor's answer is worth remembering:

> The main point in preventing fermentation is to avoid storing away any honey not thoroughly well ripened. The thin portion, which rises to the top of the bulk, after being kept for a few days in a warm place, should be kept apart and used first. The thicker honey which, of course sinks to the bottom of the bulk, will keep and not be liable to ferment if kept in a fairly warm and dry place. When jarring off, let the

stream of honey flow into the center of the jar, and not so quickly as to allow any vacuum for air between the honey and the sides of the jars.

* * *

Here's a way the English have of teaching the rising generation something about the mysteries of the hive; and it's a good way too—through "eye-gate," as Dr. Talmage used to call it.

> A lecture was given before the Children's Guild, at Manston Schoolroom, Cross Gates, near Leeds, by Mr. Gilson, over seventy children being present, besides numerous bee-keepers and adults. The lecture, which was one of a series on natural-history subjects, was illustrated by over thirty lantern slides; and Mr. Gilson told how the queen, living five years, would lay from 200,000 to 400,000 eggs per annum (110 times her own weight); and as she often lays from 2000 to 3000 eggs per day, and sometimes twice her own weight, she lays during her lifetime upward of 1,500,000 eggs, which, if put end to end, would reach 1½ miles.

* * *

In speaking of pure English honey as contrasted with imitation honey, S. Baring-Gould, author of that celebrated hymn,

Onward, Christian soldiers,
Marching as to war,

says in one of his books:

> From the blossoms of the furze the bees derive their aromatic honey which makes that of Dartmoor supreme. Yet bee-keeping is a difficulty there, owing to the gales that sweep the busy insects away, so that they fail to find their direction home. Only in sheltered hives can they be kept. The much relished Swiss honey is a manufactured product of glycerine and pear juice; but Dartmoor honey is the sublimated essence of ambrosial sweetness in taste and savor, drawn from no other source than the chalices of the golden furze, and compounded with no adventitious matter.

Now, who has some Dartmoor honey for sale, either comb or extracted?

EL COLMENERO ESPAÑOL.

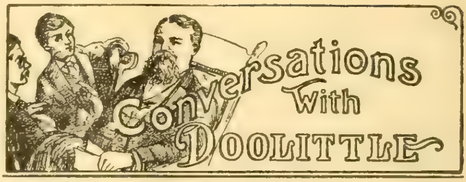
Continuing his review of bee culture in the various countries of the world, the editor has this to say of Austria, which I take from the Spanish:

> This country stands fully abreast with Germany so far as apiculture is concerned. The Emperor Francis Joseph is a great enthusiast in bee matters. He has brought the prestige of his office to bear on apiculture to the extent of instituting an academy in Vienna, for the advancement of a knowledge of bees. Over this academy the Emperor presides in person. In the various functions of his office he performs no small part in the development of apicultural interests.
>
> The railroad companies of Austria have in their warehouses bee-supplies, to be distributed among their hands who may wish to devote themselves to the care of bees; and there are railroads that are lined with apiaries belonging to the employees of said companies. The companies distribute premiums to reward those who make the best record in caring for bees.
>
> Apicultural instruction is paid for by the state, and this teaching is done by professors who travel around from place to place.

The late Empress of Austria was equally enthusiastic in the study of the bee, and was an honorary member of at least some of the Austrian bee-keepers' societies. The whole constitutes a very pleasing picture.

Speaking of Russia the editor says:

> In Russia, from very early times theoretical and practical apicultural schools have been established; and the pupils therein, according to an imperial decree of 1828, are exempt from military service. There are many thousand apiaries there, but most of them are conducted in the old-fashioned way; however, the modern ways of keeping bees on movable frames are much better known in Russia than in Spain.



AN OUT-OF-SEASON CONVERSATION; PREVENTION OF AFTER-SWARMS.

"Say, Doolittle, have you been asleep?"

"Well, I generally sleep some each night. But why do you ask that question, Mr. Mills?"

"Because you told me last May that you would tell me in GLEANINGS during the summer something about preventing after-swarms, and you did not do it."

"I did forget, surely. Do you remember now what you asked of me?"

"As nearly as I can remember I wished to know if a queen-cell just about to hatch, or a virgin queen, introduced into a hive immediately after its colony had cast a prime swarm, would not prevent after-swarming by the young queen tearing down the queen-cells left in the hive before they were ready to hatch; and, if so, would there not be a great advantage by furnishing the colony a laying queen much sooner than they would otherwise have one, besides stopping after-swarming?"

"Your question seems very simple, and easy to answer at first thought; but as I think longer and more closely on the matter I find it to embrace some of the most perplexing questions that ever come up to the thoughtful, practical apiarist.

"Why so? I do not understand."

"Let us talk it over from a logical standpoint, and see what we can find out in the matter. Your question would assume that, if a queen-cell or virgin queen is given to a parent colony immediately after it has cast a swarm, said queen, from the cell or otherwise, will go to tearing down the queen-cells left in the hive when the swarm issued therefrom. Is this right?"

"Yes. That is as I intended."

"I think this a mistake; for, in nineteen cases out of twenty, if the swarm is hived on a new stand the cells will *not* be torn down, and not once in three times where the old colony is removed to a new stand, the swarm being hived where the old colony stood—at least this has been my experience in a practice of nearly a third of a century."

"I thought it would work, and neighbor Jones told me, when I put this question to him, that he was sure it would. Why will it not?"

"Because the bees do not want those cells torn down, for in them is cradled the choicest thing they have — something that they value more than they did their own dear mother, and that which sent her out from her own home to seek a new one in some strange land; and if they consider those cells better than their own mother, are they now going to sacrifice them for any stranger, one on which they had bestowed no care or wish?"

"I had not thought about the matter in that light."

"No, they will not do it, only as they are forced to do so by being thrown out of a normal condition by having all of the field-bees drawn off by removal of the hive from its old stand, or by the apiarist cutting off all of these queen-cells. And even in this latter case they will often kill the virgin queen given, or destroy the cell, preferring to rear a queen from their own sisters in the egg or larval form, which still remain in the hive, rather than to accept a stranger."

"Then why should neighbor Jones tell me that the virgin queen would tear down all the queen-cells in the hive?"

"Probably because he had noticed some time that the queen-cells were torn down where a parent colony had given up sending out an after-swarm, as they very often do where a scarcity of honey follows the casting of the prime swarm. Then if an experience of over a score of years of careful watching is of any value I can only think that your neighbor Jones is mistaken in thinking that it is the queen that does the tearing-down of the cells, for it is only where the queen has access to queen-cells *without other bees*, or in very weak nuclei, that she does the work of tearing open the cells, the workers being the main agents along this cell-tearing line. All know, who are at all familiar with the inside workings of a colony of bees, that, when the bees wish to protect the queen-cells, they can do it against the wishes of the most enraged queen; and when they change their mind they are just as ready to secure the destruction of the inmates of the cells as is the enraged queen; so all hands turn to, and the inmates of the cells are dragged forth and cast out of the hive, without even a single mourner. Whenever an introduced queen is accepted by the bees, of course the cells are all torn down, and all after-swarming given up; but the rule is that it does not work that way, but the cell or queen is destroyed; and unless they conclude not to swarm when the first of the queen-cells left when the swarm issued emerges from her cell, after-swarming is the result, just the same as it would have been had we not given the queen or cell, and we find we have had our labor for our pains."

"If this won't work, how are we to secure the desired end?"

"Outside of stopping after-swarming, there is generally no 'desired end' to be accomplished."

"How is that? Is not the succeeding in having a laying queen in a hive as soon after swarming as may be a desired end?"

"Well, that depends altogether upon the locality and the result in the end."

"What do you mean?"

"Just this: With a continuous honey-flow from the time of swarming to the end of the season there might be some gain, provided the advantages were not lost by swarming again. With such a continued honey-flow the colony having such queen given to it would be far more likely to conclude to swarm again than would the one where the bees had their own way, and they did not get a laying queen till near the time the brood had all matured which was in the hive when the old queen left. Ask yourself what conditions bring about prime swarming, and you will understand this."

"But I do not know that I could answer such a question fully, did I thus ask it."

"Yes, you could. If you think a little you know that the conditions bringing about prime swarming are, plenty of brood in all stages, *plenty of bees of all ages*, and honey coming in from the fields. With any of these lacking, prime swarms rarely issue."

"Why did you emphasize plenty of bees of all ages?"

"Because, where the honey-flow keeps right up, and the bees take their own course, or all after-swarming is prevented by the apiarist cutting all queen-cells after the first young queen has emerged from her cell, the colony is without a laying queen from 18 to 20 days, as a rule, which makes a break in the usual emerging of bees for that length of time, so that, when the bees from the young queen begin to emerge from their cells, the hive does *not* contain *bees of all ages*, hence such a colony rarely ever swarms again that season unless more prolonged than we generally have it in most parts of the United States and Canada. But where a virgin queen is given, or a laying queen supplied immediately after the prime swarm issues, this break in bees is not very pronounced; hence colonies having such queens given them are quite likely to swarm with a prolonged honey-flow."

"But with a honey-flow of shorter duration would it not be an advantage?"

"I can not think so. Where the honey-flow is mainly from one or two sources, as it is in this locality, I think such giving of a queen a positive disadvantage, for the larvæ from her eggs are fed on honey which the bees are gathering from the fields, which otherwise would go into the sections, that these larvæ, when matured into bees, may become useless consumers of the honey of the hive, they having come on the stage of action after the honey harvest from basswood is past, and before fall flowers think of giving any honey."

"Well, there is more to this subject than I had any idea of. But explain a little further how it works in your locality where the bees are allowed their own way."

"Where a colony has its own way, no honey is consumed by larvæ for 20 days; hence that much more is saved to the bee-keeper, and the break in bees comes just at a time when their labor is not missed, no honey harvest being on at the time they become field laborers, while there are enough bees remaining in the hive to care for all the brood the young queen produces, and this brood matures into bees in just the right time to take advantage of the honey-flow from fall flowers."

"I think I see now. You think the advantage comes in raising the bees to meet the honey-flows as they come."

"Yes, that is the point, exactly. A 'weather eye' sufficiently skilled to secure the maximum of bees just in time for the honey harvest, and as few at all other times as is consistent with this object, is something worth coveting by every practical apiarist. And this can be done only by a thorough understanding of the inside working of a colony of bees, in connection with an equally thorough understanding and knowledge of the location or the locality we are in, bringing both so that they just dovetail in, just in the 'nick of time,' when the best possible results will accrue to the apiarists who can so bring things together."

Editorial
By E.R. Root.

BANKS of loose snow around the entrances of hives do no harm; but after a warm spell the snow may melt and run into the entrances, and freeze, thus closing them hermetically tight. When it begins to thaw, it may be advisable to look to the entrances.

FORMALDEHYDE DISTINGUISHED FROM FORMALIN.

THERE is some confusion arising from the fact that the new cure for foul brood has apparently several different names. We hear of formaldehyde and of formalin, and we sometimes don't know which is which, so it may be well to know the chemistry of this. By oxidizing in alcohol, part of the hydrogen is taken out, leaving a substance called aldehyde, from *alcohol-dehydrogenatum*. Thus, when ordinary wood alcohol is oxidized, the product is a gas known as formic aldehyde, or abbreviated to formaldehyde. When this gas is dissolved in a liquid the solution is called formalin or formol.

BEES THAT WILL NOT ROB; AN INTERESTING INCIDENT.

WHEN visiting Mr. F. H. Farmer, a manufacturer of high grade candies, of Boston, he showed me a row of hives in the rear of his manufacturing establishment. In warm weather, during a dearth of honey, the candy fumes may be detected several rods away from the building, especially if the windows are open. While, ordinarily, they are screened, sometimes they are not, and the bees could, if they would, go right through the windows and help themselves to delicious candy; but Mr. Farmer assured me that they never nosed around nor offered to rob. Indeed, during a dearth of honey he has had nicely filled sections on top of the hives, and he has left them there right where the bees could help themselves if they would. Why don't they rob, then? Simply because the fumes of the candy are, as they pass through the windows, so strong and abundant that the bees have become accustomed to this peculiar aroma—so much accustomed to it, in fact, that they think nothing of *ordinary* sweet odors; indeed, I doubt if they can distinguish them any more than we could distinguish the sweet tones of a lullaby song when the band is playing—the one drowns out the other. They take it for granted that they *must* go to the commons or to the fields if they would earn their living, and to the fields they go when there is any honey to be had. When there is none, the same fumes of candy, being so abundant and so common in their every-day experience, they never think it would be *possible* to help themselves, and they don't.

HONEY CANDIES.

Mr. Farmer is a very enthusiastic bee-keeper, right in the heart of Boston. He is an expert candy-maker, employing quite a force of hands in making high grade confections. I told him that the bee-keeping fraternity in one way or another have expressed a wish that some candymaker would make a specialty of making first-class confections of honey. He promised to look into the matter, and I assured him if he would make them we would find a market; for I believe there are thousands of bee-keepers all over the country who would like to encourage the industry of converting certain grades of honey into candy, and thus develop a new outlet.

A NEW GLUCOSE PREPARATION A COMPETITOR OF HONEY.

I RECENTLY made a trip up and down the Atlantic coast, going from Washington clear up into Maine. I was surprised to find a large amount of a cheap syrup on the market, designated by a catchy name, that is advertised as being sweeter and better than honey. It purports to be made of corn, for it is, in fact, a glucose preparation, and is not, therefore, subject to the laws against adulteration. It is, unfortunately, true that some—yes, many—grocers are buying it as a cheap syrup for pancakes, and it is possibly true that it will affect the sale of honey temporarily in some localities. I feel pretty well satisfied, however, that any glucose product cheap enough for commercial competition against the higher grades of sweets will be most injurious to the human stomach; and it may be true that the pure-food commissioners may condemn this. I have tasted some of it, and I do not think I could eat very much of it without some bad results. Well do I remember the three or four weeks of severe bilious attack resulting from eating a good deal of glucose some years ago, to test its effect on my digestive apparatus. I do not anticipate that this new preparation, while perhaps more palatable, will be very much better. The brassy taste is there just the same, though to a certain extent disguised with a distinct flavor of New Orleans molasses that in itself is not unpleasant. The fact that it tastes better than the ordinary glucose, makes it all the more dangerous to the average consumer and the more hurtful to the bee-keeping industry for the time being.

A POSSIBLE FAILURE OF THE HONEY CROP IN CUBA.

A LETTER received from one of our old GLEANINGS correspondents, Mr. Craycraft, who has been located in Cuba for many years, will explain itself:

It looks as if Cuba were destined at last to lose her heretofore undisputed claim of never failing to turn out a good honey crop. We are now at a date when a half of the crop should be harvested, and not a single barrel of the present season's gathering has arrived in the market; for, with the exception of that taken at your yards in Paso Real, and a small quantity from Taco Taco, the only honey received, either in Havana or Matanzas, has been from the early "cleaning up" extracting made early in the season when prospects were good for a bountiful flow.

We have had now over 35 days of continuous cool north winds and copious rains; the rains, however, reached only as far west as San Cristobal, while vegetation is shriveling up from lack of rain at Taco Taco and Paso Real. In this section of the country the white bellflower has opened but little; and if warmer weather does come soon, there is a chance yet for a good flow of honey from it. The trouble is, though, that colonies have contracted their brood-rearing so much as to be entirely too weak to do it justice, even if it does come.

I remember when I first came to Cuba, in 1891 and visited our late friend Mr. A. W. Osburn, who I might mention kept a very accurate record, both of temperature and atmospheric conditions, he showed me his diary (I forget whether of the winter of 1889 or 1890) which recorded a continuous norther of 47 days, beginning Dec. 12 and lasting until the latter part of January, during which time the bees got no honey whatever. When the weather did change, however, his record of extracting showed that he took 47 tierces before the close of the season.

It seems that we are having a repetition this year; and our only hope is that the coming spring will be as favorable as that one was. F. L. CRAYCRAFT.

Havana, Cuba, Dec. 21, 1903.

Here is another report along the same line:

As the end of the year is here I send in a report of results for the benefit of the ones who are afraid of Cuban honey ruining the American market.

I have seen several thousand colonies in the last few days, and have heard from all the thousand-hive men I know of, as well as seeing a lot of them, and, being one of them myself, I am posted now as to what the honey crop will be, and can assure the scared ones that even if we do get the 20 per-cent reduction in duty to morrow, the American market will not be ruined this winter by Cuban honey.

The 20 per cent is just 4 cts. per gallon, as the duty is now 20 cts.; so with the reduction we shall still have to pay 16 cts on each gallon that goes from here to the United States. And by the way, Cuba has not had a single failure in 20 years the crop being a sure thing down here, or at least has been for 20 years, since the advent of the frame hive. But the failure has now come, and is here now. We are all aware of the fact. The Cuban bee-keepers are a gloomy set for the Christmas of 1903, and this winter will long be remembered by the bee men of Cuba as the winter that froze them out, not with real frost, but with a cool north wind week after week, right along and it is still blowing almost a gale. Such a winter here no one remembers having seen before.

It is too cold in Cuba for the bees this time, as the early cool weather stopped brood-rearing right at the commencement of the honey-flow in October. The flowers are here as usual, but no bees to gather, and there will not be, as brood rearing has been down to two and three frames of brood to the hive for many weeks, and colonies are all weak; and as the flow is over with March, it is too late to make the bees for this crop of honey, and it is with us all failure this time. A gallon to the hive, instead of twenty, seems to be the cry this time. Some of the thousand-hive men have not taken that much — in fact, will not get any unless surprised.

These are cold clammy facts that will rest heavily on some of us, as we count our honey crop here a sure thing every time. Worse still, there lots of bees starving to death right now during the time of harvest — bee men buying sugar at Christmas to feed in harvest time. Such is this time Cuba's lot, and in the future there are not likely to be any more shipments of bees from the States to Cuba to get rich here raising honey to send to America, with the Cuban price for honey 2 cts. per lb., in spite of no honey to offer.

Comb honey this time has it "in the neck" even worse than extracted, and it won't get over this winter's freeze-out in a long time to come.

Bee-men are going begging down here, as the crop won't pay help, so some of the boys are hunting a job, while some have gone into the tobacco business as a surer thing than bees.

Foul brood is doing but little damage this winter, and will generally be cleaned out in the spring, as the honey-men will have to melt the combs into wax in order to live through the summer of 1904.

Caimito, Cuba, Dec. 15. W. W. SOMERFORD.

CELLAR WINTERING AT MEDINA.

WE have just been examining the bees in our three cellars. The winter has been rather severe. The December just passed has been one of the coldest known for many years. So far our indoor wintering has been very satisfactory. Very few bees are found on the cellar floors, and clusters are quiet. At the basswood yard cellar (built after the Bingham plan) we put in a ventilator shaft 16 inches square, running from the top of the roof down into the cellar. Last year we had a shaft only 4 inches square, with the result that the ventilation was poor and the wintering not good, and many dead bees on the cellar bottom.

At the Harrington yard the bees are in a very large old-fashioned cellar under a house, with no ventilator. It is so large that the atmosphere does not foul. These bees are doing finely.

In the cellar under the machine-shop, at the home yard, the results are good; but we found it necessary to open and close the doors at night during moderate or warm weather, to provide for sufficient ventilation on account of the large number of colonies confined. We kept the doors and windows shut at first, but found the bees were flying out and becoming uneasy. Then when we began ventilating every night during warm spells the bees quieted down, and have been quiet ever since. In cold weather, no opening and closing of doors seems to be required.

ANNUAL REPORT OF THE NATIONAL BEE-KEEPERS' ASSOCIATION; SOME INTERESTING FACTS AND STATISTICS.

THE last annual report of the National Bee-keepers' Association is by all odds the most elaborate that has ever been put out by this organization. Since General Manager

France has taken hold of it the membership has nearly doubled, and that within the space of one year.

The new Manager has looked after and defended, during the year, something like 35 distinct cases. In some of these an actual fight in the courts had to be made; in others a wise compromise has been effected; and in every case the National has made its influence felt for the good of apiculture in the country. The most important suits are outlined, and occupy quite a little space in the report.

The matter of adulteration has received a fair share of attention. The financial statement shows that on March 3 $921.60 had been received from General Manager Secor; from Dr. Mason's estate, June 2, $81.08; from membership dues, mostly at 50 cents each, by joining through local associations, $739, making a total of $1741.68. An itemized account of expenditures shows $626.60, leaving a balance of $1115.08 in the treasury.

The usual stories about adulterated comb honey have received proper attention at the hands of Mr. France. His denials have been respectful and yet straight to the point.

Next follows a list of all the supply-dealers, queen-breeders, and manufacturers, honey-dealers, bee-keepers' associations, bee-journals published in the United States, and the last United States census relating to bees. All of this furnishes a very interesting array of information which will be very convenient to the members.

The last few pages of the report are particularly interesting in that they give not only the name and address of each member, but the number of colonies, fall count and spring count, tax valuation, and the amount of comb and extracted honey each has produced.

California leads off with the largest membership. Next follows New York, Illinois, Wisconsin, Colorado, Texas, Ontario, Minnesota, Utah, Iowa, Michigan, Ohio, and so on, clear down through the list.

Never before has there been such an interesting collection of statistics regarding the number of colonies and honey production of the most prominent bee-keepers of the United States. One is amazed, in looking over the California list, to see the actual amount of honey that was produced last year, and last season was only a fair one. Scores of bee-keepers produced from 20,000 to 25,000 lbs. of honey, mostly extracted. A few are credited with 50,000 to 60,000 lbs. The one who seems to carry off the palm in the whole membership of the National, for the largest crop of honey produced last season, is L. E. Mercer, of Ventura Co., Cal., who makes the enormous showing of 100,000 lbs. of extracted honey. Next comes W. D. Moffatt, with 80,000 lbs.; J. F. McIntyre and Joseph Moffatt, with 60,000 lbs. each.

It would be interesting to pursue this still further. Suffice it to say that no other State shows such large crops and such large apiaries. Of course this was a fair year.* But the other States that show large yields are Arizona, Colorado, and Texas. In Colorado, for example, M. A. Gill reports 75,000 lbs. of *comb* honey; in Arizona, Mr. Wm. Rohrig 72,000 lbs. of extracted; in Texas, H. H. Hyde 75,000 lbs. of comb honey and 10,000 lbs. of extracted. In the central and eastern States, and portions of the middle West, aggregate crops are usually under 10,000 lbs., but many are over 15,000. But there are a great many bee-keepers to the square mile, and the probabilities are that the bee-keepers in these States, Iowa, New York, Illinois, Wisconsin, and Minnesota, will hold their own in the aggregate of honey produced. In New York, for example, we have just one bee-keeper who in his aggregate yield comes anywhere near the big yields of the Westerners. I refer to W. L. Coggshall, who produced 1000 lbs. of comb honey and 56,000 lbs. of extracted. There are other reports that are left blank, either because the returns were not all in or because the bee-keepers did not care to announce what their crops were.

The big "bee guns" are rather shy about telling their actual yields; but General Manager France has succeeded somehow in getting their crop reports. And, by the way, I should not omit to say that Mr. France, besides being an excellent General Manager, is a bee-keeper of no mean order. Except W. L. Coggshall he has the largest honey-crop showing of any bee-keeper in the central or eastern States. We find him credited with 54,000 lbs. of extracted honey, and that, too, in a State like Wisconsin, where the general average is under 10,000 lbs. Mr. France must be a tremendous worker. He is foul-brood inspector for his State; speaks at farmers' institutes during the winter, not only in his own State but in others as well (he is now booked for New York State). He manages the work of the National, taking charge of some 35 distinct cases of difficulty arising between bee-keepers and their neighbors; got out this report, which must have taken much time, and then on top of it all he produced a crop of 54,000 lbs. of honey. It has been said that, if you want any thing done, and done well, go to a busy man. That is just what the membership did when it selected Mr. N. E. France to be their standard-bearer.

The membership is to be congratulated certainly in having so excellent a man at the head of things. Very few could be found who would be willing to do so much work for so small a pay. Nothing but a love for the work and an intense loyalty for the interests of the members could induce a man to perform such a task.

Say, those of you who are not members are losing much. Better join the great family at once.

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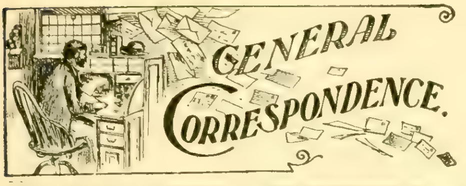
* It should be remembered that California has only about one good and one fair year out of five. These showings must be considered in this light.



MODERN QUEEN-REARING

As Practiced at the Root Co.'s Yards; a Brief and Comprehensive Treatise on the Latest and Best Methods, Gleaned from all Sources.

Continued from Last Issue.

BY GEO. W. PHILLIPS.

About 14 cells should be placed on each frame, as shown in Fig. 5. The nail-points can be inserted into the same holes again and again, as the blocks have no strain on them, and the bees glue them down firmly as soon as they are put into the hive.

Now, let us consider the part that these wooden blocks play in simplifying queen-rearing. It is not necessary to "get up steam" and set wax to melting in order either to fasten the cells to them or to fasten them to the cell-frame. In this respect we have an advantage over many systems in vogue. They are easily transferred from one frame to another. Every queen-breeder should see the advantage of this feature. It enables us to regulate the cell-building according to the capacity of each colony. We often have colonies that will accept an almost unlimited number of cells, but are not capable of completing more than 12 satisfactorily. At the same time, there may be others capable of completing more, but not good at accepting. By using these wooden plugs, the accepted cells less than 24 hours old can be detached and distributed in the most advantageous manner. It is as annoying to let a good colony of bees fuss with a scant number of cells as to let a hen waste time by sitting on a nest of two or three eggs. Since using this system we have been able to get more cells completed by fewer colonies and with less work. We generally let each of our queen-rearing colonies complete 12 cells so that every colony has its time well occupied; and we never have to open a colony, remove the cell-frame, and brush off bees in order to take care of two or three ripe cells. Another advantage which the wooden cell-cups or cell-holders have, is that they can be removed and handled without risk of cutting into or breaking them, as in the case where the wax cells are fastened on in the old manner. In fact, the use of a knife is entirely done away with.

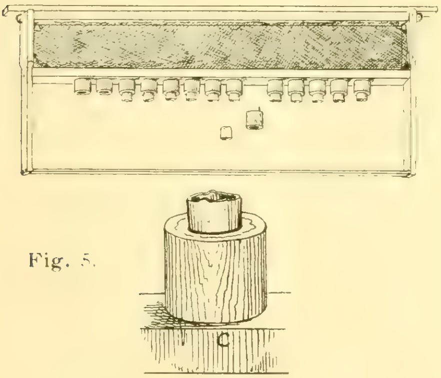


Fig. 5.

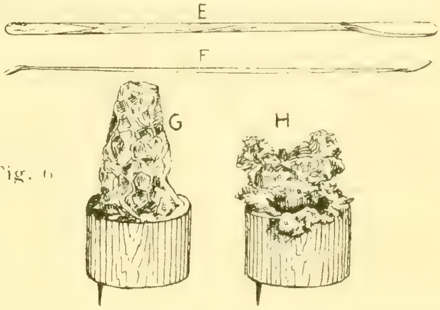


Fig. 6

GRAFTING.

The subject of grafting queen-cells has been gone over many times, and yet 50 per cent or more of the readers of GLEANINGS know little or nothing about it. I make this an excuse for going into details in this, which, to the expert, may seem elementary.

The first thing needed is royal jelly. At the start it will be necessary to make a colony queenless in order to get this; but when once operations are well started it can be obtained from the grafted cells, as in Fig. 6.

G represents an unsealed queen-cell. H shows the same broken open so as to facilitate the removal of the royal jelly. E represents the spoon for removing the royal jelly from cell H; and F, the little fellow, is the larva-lifter or "transferring-needle," as the artist has been pleased to call it.

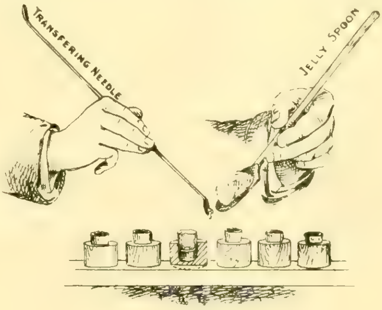


Fig. 7.

Unsealed jelly must be used, and this should be stirred before using. One well-fed cell, taken just before it is sealed, will supply enough jelly for two frames of cells (28) or more. Royal jelly gets hard very soon after it is removed from the hive, therefore it should not be removed until the last minute. Where a lot of cells are to be grafted, the jelly for supplying them should not be removed from the hive all at one time, but several different graftings should be done, and only enough removed as required at each time. A great deal depends upon how quickly an operator can do the work. I can graft 112 cells before the jelly gets too hard for use, and others who are more dextrous can do more.

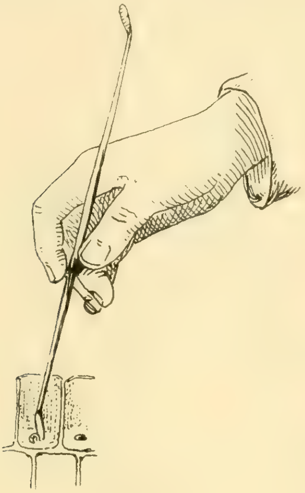


Fig. 8.

Fig. 7 gives a fair description of how the jelly is transferred to the cells. The section of the cell shown, the third from the left, illustrates nicely the right proportion of jelly that should be supplied to each cell. The jelly is removed from the unsealed cell in the first place, with the jelly-spoon, and the proportion designed for each cell is in turn picked off from this bulk and placed in position with the "transferring-needle."

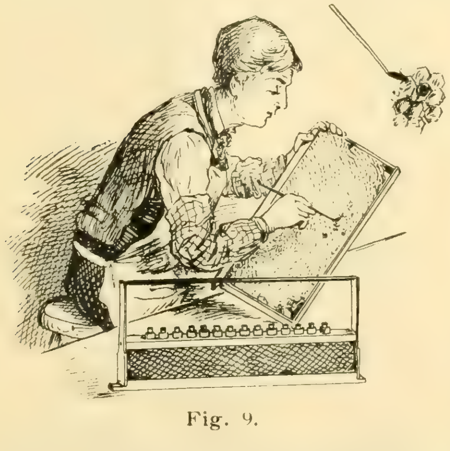


Fig. 9.

A frame of select larvæ, not more than 36 hours old, should be chosen for grafting, and should be right handy so that, as soon as the jelly is supplied to the cells, the larvæ will be at hand ready to be transposed to their new quarters.

Fig. 8 shows the manner in which the larva is removed from its cell. Rightly speaking, in this illustration the point of the larva-lifter should be a little further behind the larva—at just about the center of the curve in its body. Some use a little jelly on the point of their larva-lifter, and say that, by using it, the larva adheres to the instrument more readily; but for my part I prefer a clean dry lifter, especially if it is profusely fed. When the larva is removed from the comb it is placed in sweet contentment upon the little nest of royal jelly prepared for it in the cell-cups, and from that moment the life of the *worker* ceases and that of the *queen* begins.

Fig. 9 represents a bee-keeper at work grafting queen-cells. The comb should be held at such an angle that the light falls into the cells. There is no necessity of paring them down; a little practice will soon enable any one who has fair eyesight to lift out the larvæ from an ordinary comb with ease. At first the operation may cause you to look more perplexed than our friend in the picture does; but keep right at it; and if you have any of the stuff in you that goes to make a good bee-keeper, you will make a success of it, and in doing this you will have mastered the most important branch of the bee-keeping industry, and one that will add new profit as well as fascination to the pursuit of your choice.

(*To be continued*).

AN EXPERIENCE IN PEDDLING HONEY.

An Interesting and Readable Account.

BY HARRY LATHROP.

I started out one day toward the west,
  Hoping to sell the product of my toil;
And thought within myself that it were best
  To try to sell to tillers of the soil.

I went, but I returned with all my load,
  And more; for all along the winding way
A heavy heart I carried on the road
  That led me home that fading autumn day.

Having read the experiences of different ones who have tried the plan of selling honey from house to house, I tried it this season with the following results. It was during the closing days of summer. The weather was fine, the roads good—that is, as good as our roads ever are here in Southern Wisconsin, where a drive across country consists principally in making dives down hills steep and long to cross small spring brooks, and then climb to the top of the next hill to repeat the operation. I was provided with a span of lively ponies and a neat spring wagon, in which I placed a few cases of honey in cans large and small; and in a box I had a small scale for weighing small lots. Thus equipped I started out with high hopes of coming back with a light load and a pocket full of money.

My first stop was only a few miles from town where a saloon is kept at the crossing of the roads. I tried to make a sale to the proprietor of the place, but he declined with a look of disgust. It is a fact that people who are given to indulgence in beer and tobacco, and such things, have no taste for honey, and seldom touch it. Their tastes are perverted, and nature serves them right by depriving them of the power to appreciate her choicest dainties, of which honey stands at the head.

But, to go on with my story. The next stop was made at a cheese-factory. I could not sell to the people who lived there, for they possessed a colony of bees, and had produced more honey than fourteen families could use. But I was directed to a farm where no bees were kept, and on the way I kept thinking, "Now, this is my chance. I will make a sale this time." The house was half a mile from the main road, and down in one of those ravines. I made the dive, and anchored the team up against a strawstack while I went to the house with a small can of honey. The lady received me kindly, and said she would like to have some honey, but her husband was away, and she never purchased any thing without his consent. She thought he would soon be back, and wished I would wait. My time was too precious to wait there for the bare chance of selling twenty-five cents' worth of honey, so I called for a small dish and poured out as much as the woman could eat at one meal or more, and went on my way thinking, "Shame on the man who will not allow his wife so much liberty as the purchase of a little honey! Such men never consult their wives when they buy tobacco, or, worse, stand in front of a bar and buy drinks."

At the next place I did not get out of the wagon, but called to a woman at the door of her house. I told her what I had, "extracted honey—the very finest quality." She would not buy, but she said if I had comb honey she would take *one pound*. I went on, but met with no success. It came near night, and presently I crossed a little clear running brook and drew up in front of a house that was shaded by an immense willow. Back of the house rose a great bluff, and on its lower slope there was a row of about a dozen bee-hives of all shapes and sizes. There were children in plenty, boys and girls, and I soon got into conversation with them and learned which one of the boys it was who took to bee-keeping. It was a family of Swiss people engaged for the most part in dairying. They were milking 35 cows at the time. I asked the giant farmer how it would be for me to stay with him over night and help milk the cows. His ready "yah!" gave no uncertain sound of welcome; so, within ten minutes from that time my team was in the barn, the wagon safe in the shed, and I was down under a big cow milking away, and thinking to myself that it would be a hard matter to starve a Yankee or the son of a Yankee.

Those cows gave great messes, more than a large pailful for the best milkers, and no wonder; for the rich grasses all over the hills and valleys reached to their knees. That night I milked two cows and the next morning five. There were several boys and girls who milked, besides the farmer, and it took only half an hour to do it all up. As much time as we had that evening and the next morning, I talked bees with the boys, giving them the best advice and instruction I could, and I felt that I had fallen among friends whose hearts were without guile. Before I left they bought a gallon of honey, the first I had sold, and refused any thing in payment for my lodging.

Only ten years from the old country, this man is bound to succeed. He has purchased a large farm, going largely in debt for it; but at the time I was there the income from milk and eggs was over seven dollars per day, and no outside help hired, with the exception of one small boy to help do chores.

The next day I continued on till noon, going still further from home, and made but one sale of half a gallon of honey. At many places I was informed that they had honey, or that some relative kept bees, and they could get all they wanted for the asking. I started for home with the firm belief that a man starting across the country with a load of honey, and traveling day after day, could not possibly sell enough to pay his expenses, even if he got the stock for nothing.

I came to the conclusion that we must look to the towns and cities for our market. Farmers as a class will not buy honey. They will go without, and use, instead, glucose syrup that they buy at the village store at about 35 cents per gallon—stuff that has no flavor, and nothing to recommend it but its resemblance to something good.

On this trip I was not sad or discouraged, except in reference to the matter of selling honey. In another way I was more than paid for my trouble. I feasted my eyes on as lovely scenery as the sun ever shone on, and found new friends that even now seem like old ones.

I can sell honey, and am doing it right along — sending it to all points of the compass; but peddling is not my way. Let the other fellow peddle. I will sell to jobbers, merchants, consumers, anybody; but they must come to me in the future.

Monroe, Wis., Oct. 19.

[Your experience, friend L., is, I think, about the same as the most of us would have; and yet it is possible that, if you were to take another route, you might have an entirely different experience. There is a great difference in people. Some are born salesmen, and others can do better in some other line.—Ed.]

COGGSHALL STUDENT BEE-KEEPER.

A few of Coggshall's Short Cuts; Kicking Supers off; how to make an Uncapping-can of a Keg.

BY LOUIS F. WAHL.

After I became interested in bee-keeping I subscribed for GLEANINGS, where I saw a notice of the Ontario Co. Bee-keepers' Association, and was fortunate in meeting W. L. Coggshall, and engaged to work for him during the buckwheat season of 1900. The bee-fever was so contagious there that I could not escape catching it, and have no hopes of recovery.

This year I felt the need of reviewing my enthusiasm and learning a few more of his short cuts.

During one week with him this year, W. L., Archie Coggshall, and I drove a distance of about 75 miles, extracted 11,500 lbs. of honey from 7 apiaries, numbering about 600 colonies. This being the close of the harvest, and right after the heavy wind and rain storms, our best day was 3000 lbs. I took off all the combs and supers, wheeled them in, and received only about a dozen stings, and used the kick act too. Most people do their kicking over general opinions, and don't use it in the right place.

Right here is an important point: After a colony is once subdued by a little smoke which is puffed under the oilcloth covering while flopping it, and the frames taken out, no matter how much kicking is done with the super any more than prying it with a screwdriver or hive-tool.

But one thing I noticed in particular. The bees were more vicious on the ends of some rows where the skunks had been at work. On page 760 F. Greiner speaks of Dr. Miller's bee-suit not meeting the requirements of Coggshall. Well, the suit that does meet his requirements is a white duck combination suit, or double-decker overalls and jumper in one complete suit, that just buttons in front; a pair of bicycle pants-guards; and a black bobinet veil, with sometimes a pair of gloves added.

You will see by the engraving that my method is practically the same as Coggshall's, so I have little to say now about my method. There are a few things that I do differently, being led astray by false prophets, and, like Saul's conversion on his way to Damascus, it is hard for me to kick against the pricks.

I am about through buying stuff that is costly, for quick and practical work. On a visit to Mr. Coggshall's and I. L. Schofield's, he showed us several things he bought and put away, never using them. One was an uncapping-can with a rigging to hold the frame. It made me laugh, and I thought I wasn't the only black sheep in the flock. Just look at the keg in the engraving of the inside of my honey-house, with a narrow piece of board on the top to rest the frame on. When it is full, stir it up like mincemeat; put a screen on top and turn it upside down over the store-can, and it will drain out as dry as powder.

BEE-YARD OF LOUIS F. WAHL, CHILI CENTRE, N. Y.

I am one of the twelve that W. L. spoke of on page 758, who made a success in the bee-business by reading the bee-journals from cover to cover. There is one thing about reading that we need — some method of keeping track of things so we don't forget.

I have 70 colonies in my home apiary, and 55 in my out-apiary. I am peddling extracted amber honey at 15 cts. without package, or $1.50 per gallon. I sell from 70 to 80 lbs. a day, and will tell later how I do it.

Chili Centre, N. Y.

[Your uncapping-can (keg), or perhaps it is Coggshall's, is a very good arrangement, and I don't doubt it fulfills a very excellent purpose.

When I was present at one of Coggshall's extractings the bees were very cross, especially so when Mr. Coggshall began kicking off the supers. But he told me afterward he was having a little fun at my expense—that he wanted to warm a bee editor with a few stings, and he did. I thought there was something sinister in his movements at the time, but I was not sure. I shall be glad to know that the "kick off" can be worked so professionally as not to stir up the bees.—ED.]

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THE SECTIONAL BROOD-CHAMBER.

A Retraction by One who has Advocated the Shallow Brood-chamber.

BY F. GREINER.

The subject of shallow sectional brood-chambers has been brought up again of late by such prominent writers as A. C. Miller, F. L. Thompson, W. K. Morrison, in different bee-periodicals. I have myself been singing the praises of the half-story brood-chamber, and been very enthusiastic over the advantages it offered. But while seeing them I somehow overlooked or underrated the disadvantages. They, however, have made themselves felt late, and my enthusiasm has worn off. I am about ready to go back to the full-depth frame, ordinarily using a single story for brood-rearing, and contracting by dummies when desirable. It is very true that the sections over the dummies are sometimes not finished up as quickly as those directly over the brood; but when the season is good, we don't experience any trouble along this line.

To overcome the trouble in poor honey seasons I have of late put the dummies over to one side of the brood-chamber; and when I noticed the bees neglecting the sections over the dummies I turned the section-case half way around, which manipulation required but a moment's time, and brought the nearly finished boxes over the dummies and the neglected ones over the brood. I would also state here that I have gone back on extreme contraction. Even when excluding honey-boards are used with less than seven L. frames or their equivalent, pollen is not unfrequently stored in sections; and when no excluder is used, brood is reared in them. When absolutely no drone comb is allowed in the brood-chamber as practiced or advocated by Mr. Morrison, the bees seem to be determined to rear their allowance of drones in the sections; and although they may build comb or draw out the drone foundation in the super, this comb is left empty for a long time. Evidently the bees do not comprehend why the queen does not use it for depositing eggs in, and keep waiting and waiting. Mr. Morrison's theory, therefore, does not seem plausible to me. When bees build drone comb for the purpose of rearing drones in the same, they do not use it for storing very soon, and they also use a greater or an undue amount of wax in constructing it. Both are undesirable. Mr. Morrison is also compelled to use a queen-excluder, another undesirable thing. Considering the top surface of his hive, this queen-excluder must of necessity be more expensive. The same would hold true of the hive-cover.

...WAN'S
RAPID-
...RACTOR

LOUIS F. WAHL IN HIS EXTRACTING-ROOM.

The shallow brood-chamber Mr. Morrison uses is of the same capicity as an eight-frame L. hive containing 14 frames. This makes a large body to handle by the brood-chamber instead of by the frame, and only a giant would be equal to the task It strikes me that he will have to shake each one of his 14 frames singly, just the same as one with a Quinby frame. Why Mr. Morrison should fancy the shaking of a Quinby frame more difficult than that of his shallow frame, I can not understand. It is true I can lift one pound easier than two; i. e., two pounds weigh more than one; but I'd just as soon stoop down and pick up the two pounds as the one if stoop I must; and the bee-keeper of ordinary strength will just as soon shake one frame as the other, and will get along as easily, and more speedily with the tall frame as Mr. Morrison does with his shallow frame. He will have the advantage of having to shake but half the number.

It is one of the great advantages of the large frame that all frame manipulations are conducted with greater speed considering the amount of comb surface gone over. I can find a queen much easier in a single-story full-depth frame hive than in a shallow-frame hive of equal capacity, whether in single story or double.

Speaking of his large shallow-framed hive, Mr. Morrison says, on page 672:

> The way to use such a hive is easy. During the winter or off season one chamber is used; but when the swarming season arrives, the second chamber with drawn combs is added *from below*. This is a damper to the swarming fever. Later on, when the upper half has become pretty well filled with honey, it is removed and then a super of sections is put on. Here we have a shaken swarm without the shaking—at least, the only shaking is in shaking the bees out of the upper chamber.

Handling bees in New York, I have observed when adding an empty set of combs below the occupied brood-chamber the bees are many times slow, very slow, taking possession of it. I have seen such combs neglected through the better part of the honey season. Even with my six-inch brood-chambers I have experienced this trouble. On the other hand, when such combs are added on top they are usually promptly occupied.

When Mr. Morrison reduces his two-story hive down to one story he terms this manipulation "shaking swarms." Of course, he does shake 14 frames; but the other 14 are left untouched, and so the operation would hardly come under the head of shaking swarms. The manipulation will prove very effective later in the season when the desire of swarming has entirely died out, or with colonies that have just reared a young queen, no matter how populous they may be; but with normal colonies at the swarming season the plan fails here.

When Mr. Morrison really has to make a shaken swarm he will have to shake 28 frames. Fancy shaking 28 frames separately with a large number of colonies when work is pressing and time exceedingly scarce and valuable! I have done it, and don't care for any more. With the regular Heddon hive one may shake the larger part of the bees from a brood-chamber without handling frames singly. It is just small enough for the average man; but even with this hive it is not a safe way of doing, for the queen may be left in one or the other of the sections. With Mr. M.'s large hive the operation by hives is impracticable.

Mr. Morrison wants a super to hold about 50 pounds. In this locality a super of such capacity is too large, for the reason that swarms can not be depended upon to fill it in a single season. In a good honey location such a super is perhaps all right. It is quite evident that different localities require different hives to obtain best results. For this reason alone the catalogs of the supply-dealers will always contain more or less different patterns of hives and supers.

There is one thing in Mr. Morrison's article which I wish were true; but I am afraid it is too good to be true. He says, page 673:

> The whole theory of management is simply this—to work up the colony to a high pitch in two chambers then when the honey comes on in full blast, remove one chamber and put the section super in place. *This stops swarming* very effectually; and, as a consequence very plump well-filled sections.
>
> The *bete noire* of a comb honey apiarist is the habit the bees have of storing honey in the brood-chamber The shallow hive holds this in check. Where only two chambers are used, there will be a fair amount of swarming; but where three are used, the apiarist holds the whip hand.

With a deep frame and wider spacing, the management described does not achieve such results in New York; and if Mr. M.'s shallow-frame hive with 1¼-inch spacing accomplishes what he says it will, *the great question of how to manage out-apiaries*, or any apiaries intended to be run for honey, *is solved*. Indeed, I would not hesitate long to break up every last hive of mine into kindling, and order Morrison hives to replace them, if I were assured of such remarkable results. I believe Dr. Miller and hundreds of other bee-keepers would join in with me. Dr. Miller would not have to look any longer for a non-swarming bee, because the bee would not swarm.

If there are half a dozen bee-keepers located in as many different States, willing to test the Morrison hive and his method, I will be one. Perhaps the Root Co. would be willing to get up the hive according to Mr. Morrison's instructions. Of course, we want them right.

It would not be desirable to take a section of larger proportions than we have now into use; and in order not to adopt an odd-sized section, I would suggest using the regular 3⅝×5 section in double tier. My preference would also be a wide-frame super. Such a one would make it easy to put into practical use Mr. Morrison's idea of having but one size of hive-bodies. In fact, I have made use of this principle for years in my own half-story hives, which I am ready to abandon.

Naples, N. Y.

[In making comparisons of the sectional brood-chambers or shallow hives a good deal depends on the depth of the frame or hive. The extremely shallow frames of five or six inches seem to be pretty well ruled out of practice as being too much of a good thing. But there are many who like a frame about 7½ inches, and among them is G. W. Brodbeck, one of the leading bee-keepers of California. Such men prefer a frame of that depth for either comb or extracted honey.

This whole question is an interesting one, and I should be glad to hear from others of our subscribers, both those who have tried the sectional brood-chambers and abandoned them, and those who have tried them and like them.—Ed.]

PICKLED BROOD.

A very Interesting Case, Accompanied by some Valuable Suggestions; Pollen not Removed by Soaking in Water.

BY C. F. BENDER.

As I have had what seems to be a rather unusual experience with pickled brood, I will try to set forth what I have learned, for the benefit of others—to give others, if possible, the advantage of that experience, without the cost.

About the middle of last March I cleaned up the combs and hives of fifteen colonies which had died by being buried under a snowdrift. Many of the combs were old, and nearly all were heavy with pollen, but with only a little honey. Two or three of the combs from one hive contained some dead brood, mostly unsealed. Supposing this to be chilled brood, as it may have been, I paid little attention to it; but I hung all the combs together in the honey-house, to wait for warm weather.

When the bees began to get pollen in the spring, I went over the whole apiary; and as there were many weak colonies I took away a part of the combs from them, leaving only as many as they could cover, putting the spare combs with the others in the honey-house. There were no signs of disease in any of the hives at this time. When warm weather had become settled, and some of the bees had begun to need more room, I was troubled quite a little at there being so much pollen in those old combs, especially as some of it was rather moldy.

About this time I read Mr. Doolittle's advice as to getting pollen out of old combs, and proceeded to follow it—*to my sorrow*. I filled a barrel with the combs, after extracting such as contained honey; poured in water to cover them, and left them to soak for 48 hours. Then I tried the extractor; but the pollen wouldn't come out for any kind of turning. I gave them three days more soaking, and tried again, with the same result. Then I used salt water, so the combs wouldn't sour, and soaked them several days longer, but could throw out only a small part of the pollen by vigorous turning.

I took the soaked combs out and dried them, such as had not been ruined by the process, and used them to fill out the hives which had begun to need more room. And now my troubles began.

In about a week every hive to which these combs had been given began to show dead brood. In some the brood all died immediately; in others the disease progressed more slowly, but none the less surely. The brood always remained healthy until after the third day of the larval stage, but almost always died before sealing over. Even in those cases which were mild at first, the disease always progressed until there was no healthy brood in the hive, or very little, except that which was too young to take it. There was a strong smell like pork-brine in all the cases—no ropiness of the dead larvæ. The affection did not seem to be very contagious, as there were no cases except those infected by the introduced combs.

After growing cultures of the mold I was convinced that the trouble was pickled brood; but to make the matter a certainty I sent samples to Dr. Howard, who confirmed my diagnosis. Now for the treatment: I shook several swarms on full sheets of foundation, and nearly all of them remained free from the disease. One or two took it again later on.

But I wished, if possible, to save the infected combs, so I began to experiment. I picked out enough combs containing no dead brood for five colonies; fumigated them with sulphur, and shook diseased colonies on them. The greater part of them took the disease again. Then I used combs containing no pollen or honey, fumigated in the same way. This was successful where the combs were nearly new, not otherwise. To give all my experiments would take several pages of Gleanings; but my conclusions will be shorter, and perhaps more interesting.

I found that I cound not safely use the infected combs over again, even if they were free from pollen and dead brood, unless they were nearly new. I tried fumigating with formaldehyde gas, in a box as nearly air-tight as I could make it; but the results were not satisfactory. I am sure that, for pickled brood at least, formalin is nearly useless. It succeeds sometimes, but too often fails. I had much better success by fumigating with burning sulphur. And let me say right here that you had better not trust to formalin in any disease where the combs contain either dead brood, pollen, or honey. Even the manufacturers of the drug do not claim for it much penetrating power. The only safe rule is to destroy all old combs, and give the bees empty frames or foundation. Even if you have never had any bee-disease, it will be safer to fumigate all old combs with sulphur before returning them to the bees.

There is one thing that I rather hesitate about mentioning, because I am not quite sure of it yet; and even if it is true, I can

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"Why, Bro. Root, didn't you ever see a baking-kettle before?"

I had to confess I never did that—is, I do not remember it. I might have seen something of the kind in my early childhood. After I thought of it awhile it did seem to bring up recollections of long ago. Well, the hot cakes from that baking-kettle with butter and *honey* were A No. 1. And then we had some eggs cooked backwoods fashion. After dinner the boys took the honey home; and after friend Jefferson had asked if I was good on a walk he took me through the alfalfa-fields and fruit-orchards over to his home. As I am going to write up the fruit industry of Graham Valley later on, I will not mention any more of it here. But the walk through the fields and orchards was one to be remembered.

When I first reached Bro. Jefferson's home I noticed quite a lot of children around. I supposed likely they belonged to the neighbors; but pretty soon I found there were *nine* in the family, and yet Mrs. J. is still quite a young-looking woman; I decided that his home might present one encouraging feature to our good President Roosevelt as well as to A. I. R. You see the mother in the picture with the youngest in her arms. Right by her side is the eldest, a bright young lady. Now, I can not be sure that *all* of those little folks belong to friend Jefferson and his wife; but it is not unlikely. See how many you can count up.

I have told you before that I got to be very much in love with the fashion in Arizona of sleeping outdoors. They told me I could sleep out of doors at the time of my visit; but the good wife rather thought I should be more comfortable with my bed right in front of the door that you can see right back of the young lady. I happened to get up rather early in the morning, and I caught a glimpse of the place where a great part of the Jefferson children slept. I do not suppose anybody will object if I tell about it. The house has an L to it, as you will notice, back of the extracting-wagon. Well, in the corner of the L there is a broad porch; and the young Jeffersons spread their beds out on that porch. In fact, the porch was about *full* that morning when I happened to cross the back yard. As each youngster wakes up to his day's work, his first job, if I caught on correctly, is to "take up his bed and walk." Then right beside their sleeping apartment is a wash-basin, and plenty of soap and water. The arrangement makes things easier, you see, for a mother with a large family.

Friend Jefferson did not tell us in his letter about his out-apiaries, as I wanted to have him do and expected he would; but, if I am correct, there are three apiaries and about 500 colonies in all; and I tell you that family of nine comes awful handy to a man with three apiaries. The father seems to recognize the responsibility that rests on him, and tries to do his duty. After I became somewhat acquainted, Uncle Amos was called on to decide a perplexing question. It was something like this: How late should a father permit a daughter of seventeen or eighteen to be out evenings with a nice young man as an escort? It rejoiced my heart to see that the daughter obeyed her father strictly to the letter, even if she thought he was drawing the lines a little too closely; and after hearing all the facts in the case, the mother and daughter exchanged some bright glances when Uncle Amos was forced to decide in favor of the daughter's view. Notwithstanding, I told them it was a grand thing to have a father who erred on the side of being *too* careful of his grown-up girls rather than one who is inclined to be *careless* instead of careful.

Friend Jefferson bought the running-gears for his wagon I think of Montgomery Ward & Co. If you look close at the dooryard, right out in front of the young lady and her mother, you will notice an inclosure made of bricks set with their corners uppermost. Inside of this inclosure friend Jefferson has started a lawn by setting out plants of *Lippia repens*. Each plant has covered a circle more than a yard across with beautiful bright vivid green, with a soft carpet-like foliage. The plant sends out runners somewhat like the strawberry, and they root very readily and multiply rapidly. Any of these rooted vines may be taken off and planted anywhere. With a little shading and watering they take hold and grow. He expects to have a dense-green lawn that will keep its luxuriance with very little water, and it is a lawn that is going to yield honey—at least, so we are told.

In the small cut our engraver has endeavored to present the wagon by itself. You see it is all covered with wire cloth above the lower solid panels. Bee-escapes are arranged so that bees that get in on the combs readily find their way out, and are thus out of the way.—A. I. R.]

* * *

HOW TO KEEP HONEY FROM CANDYING.

Treatment for Paralysis and Black and Pickled Brood.

BY HENRY ALLEY.

On page 968, in a footnote at the end of H. G. Quirin's article, you say, "Some two or three years ago Mr. Henry Alley announced that he had a process for keeping honey liquid indefinitely under all conditions. He did not immediately make it public; but when he did, it was nothing more nor less than keeping the honey in a warm temperature *for a period of thirty or sixty days, and then sealing.*" I have put those words in italics which I did not say. I never made a statement of that kind in or out of print. My process for preventing honey candying the *second* time is this:

I put in a Root extractor 150 lbs. of candied (or partly candied) honey. The extractor is then placed about 20 inches above the floor, or high enough so that an oil-stove can be used under the extractor, and yet not come too near the metal to burn the honey, as you know that overheating destroys the flavor of honey. The honey is thoroughly melted, or dissolved, and then heated to a temperature of about 125°. It is then drawn off into bottles, and quickly corked up or sealed with the cork stopper only. I never use any thing to seal the bottles. I then place the bottles in a place where the honey will keep warm until I have a chance to dispose of it.

I had an idea that this part of the process was what caused the honey to retain the liquid state. Some two years ago I found that the heating process was the secret of preserving honey, provided it was "corked up" while hot.

Honey treated as above will keep in the liquid state a long time. I do not think this process will have much effect on some kinds of honey—goldenrod, for instance. I think it a good idea for those bee-keepers who sell honey, either at retail or to the grocers, to inform them how to keep the honey after they have purchased it. I never fail to tell all my patrons to keep the honey in a warm dry place. About the first thing purchasers of honey do is to put it in the cellar, both comb and bottled honey. I sold a grocer some bottled honey a few days ago. He said he had some honey in the comb in his cellar. One of the clerks was sent for it. It was in pound sections, and all of it looked as though it had been taken out of brine.

By heating honey as above stated I find it very easy to run it into bottles. I can fill 100 bottles in less than half an hour. The fact is, cold honey can not be put in bottles at all. When my honey is hot enough to work all right I just put the bottles within easy reach at my left; fill them and place them on my right. I take a seat in front of the tank; and as one bottle is filling I drive a cork in the previous bottle, and at the same time set another bottle ready to place under the faucet when one is removed. It takes but a very short time to run 150 lbs. of honey into ½-lb. bottles.

GLEANINGS is a good paper. There are many good things in its columns. I believe, however, that you all are away behind in curing bee diseases. I refer to foul brood, pickled brood, black brood, and paralysis. I am quite sure I can give the bee-keepers of the world some very valuable points on this question. My time is largely taken up in summer in rearing queens; but if I find any thing unusual in the apiary that needs investigating, and calls for experiment, I at once give it attention. I am not so sure about the cure of foul brood by my process, as I have had none in my apiary for 35 years. I have seen black brood, and that I bought and paid for dearly, and on that I have experimented with good success. I never open a stock of bees and fail to look for dead brood. When I find but even one cell containing a dead larva the bees and combs are subjected to treatment.

I believe any case of foul brood will yield to proper treatment with lysol or phenol. No one has ever used those remedies as I would in case I had a case of foul brood.

By my treatment of black and pickled brood, also paralysis, the combs are quickly cleansed of all dead larvæ. Since I used the treatment, some four years, not one dead larva has appeared in my hives.

Last June I purchased a colony of black bees. Going by the hive one day I noticed that the entire front of the hive was covered with bees, all shaking violently. I at once fixed up a dose, and commenced to treat them as I would a case of black brood. Some of the bees that were the sickest died; but by far the largest part of the colony was cured and saved. I didn't care whether the bees lived or died; but I did want to see whether or not they could be cured of the disease.

I see Mr. Quirin could not succeed in having his queens fertilized *a la* Swarthmore. When will people get through fussing with those fussy things? Keep on doing things in the good old-fashioned way. I can succeed in queen-rearing by applying nature's ways; and I can do some things by trying the fussy things. Practical methods lead to success.

Wenham, Mass.

Heads of Grain
from different fields

WORKER BEES GETTING INTO AN ADJOINING HIVE WITHOUT BEING MOLESTED.

The queen I got of you in June is a good one; but there is one thing funny about her. Her bees enter two other hives at will, and are not molested. I have been feeding winter stores, and in taking out frames to see the amount of honey they had, I saw quite a few yellow bees. They seemed to be at home, and had pollen on them. The queen I got of you is the only pure Italian I have, so there is no mistake. I can tell her bees as easily as I can tell beans from peas; but there is no mixture in the Italian hive.

Tell Mr. A. I. Root that the fish-hatchery is at Paris, and the silk city is Belding, not Greenville. They employ about 1000 girls. C. H. WIGGINS.

Lowell, Mich.

[What you say about young bees, friend W., is not at all unusual. Where an Italian queen is put into a hive containing black bees, with other hives of black bees close beside, the Italians will be found scattered on both sides of the Italian hive. I think this indicates clearly that young bees especially often get into the wrong hive; and where they come in with a load of honey or pollen I think they are seldom if ever troubled. I have noticed this a great many times.

Many thanks for straightening me up about the State fish-hatchery. If any of our readers ever go near that part of Michigan I think it will pay them well to make the hatchery a visit at Paris, Mecosta Co., Michigan.—A. I. R.]

ARE MIDWINTER FLIGHTS OF CELLARD BEES NECESSARY? ETC.

Will you inform me if bees can be safely kept in the cellar all winter without being allowed to take flight? or would they need to be moved outdoors on some warm day so that they might evacuate? I have only a few hives of bees, and they are of the summer build, single board. They have from 20 to 30 lbs. of honey to the colony. I have a cellar with a furnace in one part, which makes it quite warm—perhaps on an average about 50°. What would you advise?

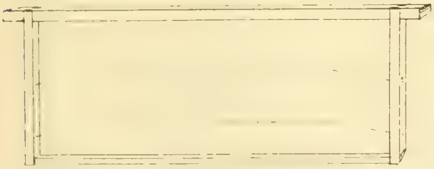
One other question I should like to ask—Does it make a difference where the bee-yard is situated, about bees going to work in the morning? My bees have been on the west side of the house, where they did not get the morning sun, and it seemed to me that they went out very late in the morning. A. R. HARRINGTON.

Grand Rapids, Mich.

[We consider midwinter flights, when the weather will permit, quite an advantage. In our own locality, bees will get very uneasy and restless; and if they can be given a flight on some warm day they will quiet down and winter much better. There are others who differ with us in the matter.—ED.]

A VALUABLE KINK IN WIRING.

Any one can get the wires in the frames, foundation in the top-bars, and wires in the foundation, but the two briers are, first, the "cost of the foundation," and, last, "that buckling." We can reduce the first objection by using light foundation; but that means "more buckling." This brings us down to the wiring. Wires were first run vertically; later years, horizontally. Still there is frequent buckling. With horizontal wires drawn moderately tight, I give you a key that I wish some one had given me years ago, and that is, to *bow your wires*—upwardly, of course—the top wire the least and the bottom wire the most, using a spur wire-imbedder. With this mode of wiring I get entirely satisfactory combs, using light brood foundation, and better service with the spur wire-imbedder than when using heavier foundation. These, my later experiences, are with seven-inch frames and two wires to a frame. When wiring frames you will, to be sure, have the good sense to keep the bottom wire a sufficient distance from the bottom-bar, for the day may come when you would want to cut and use queen-cells from this point, where, as you know, they most abound.



A. B. ANTHONY.

Sterling, Ill., Oct. 19.

[Your way of wiring, or rather of putting wires into the foundation bowed up, will, I feel sure, prevent buckling. We have been in the habit of securing largely the same results by drawing the wires loosely. There is danger of using foundation too light and having too few wires in that the cells will elongate too much, resulting in the rearing of drone brood.—ED.]

NEW ORLEANS MOLASSES AS A WINTER FOOD.

I shall have to feed a few colonies of my bees. Will it do to feed good home-made syrup partly granulated? If so, will I have to put in any water? If so, about how much per gallon? Bees can fly some nearly every week. J. S. PATTON.

Havana, Ala.

[When you speak of home-made syrup I suppose you mean what we call up here New Orleans molasses This would do very well as a winter food in a climate like yours; and to feed, reduce down with warm water so that the syrup will stand about ten pounds to the gallon.—ED.]

DR. MILLER AND THE CLIPPED-QUEEN QUESTION.

I notice in Stray Straws your footnote in answer to Dr. C. C. Miller in regard to swarms having a clipped queen. I have had some experience myself with clipped queens. In September, 1902, I clipped all of my queens. The following spring, four out of seven swarmed. In front of each of three hives I found a ball of bees with the queen; and a short distance away from the fourth hive the whole swarm was on the ground.

Living on a town lot I am compelled, through lack of room, to keep my hives on a stand about 8 in. high. This, perhaps, keeps the queen from crawling back into the hive, which she likely would do if the hive stood on the ground. I do not know whether bees act differently in other States or not; but I do know, Mr. Editor, that, according to your footnote and my small amount of experience, Ohio and Pennsylvania are nearly alike.

Sewickley, Pa. W. W. BROCKUNIER.

[Dr. Miller is requested to read the foregoing.—ED.]

CANE OR BEET SUGAR.

I wish to ask you which is the best, to feed bees on beet sugar or cane sugar? Is beet sugar hurtful? J. D. HORTON.
Bloomingdale, Mich.

[In this country we make no distinction between cane and beet sugar, but there seems to be a difference of opinion among a few. In England bee-keepers are warned against using beet sugar; in this country we have been in the habit of using either beet or cane indiscriminately, for the fact is there is no test we know of that will enable us to tell the one sugar from the other. I have talked with beet and cane sugar men, both representatives of the manufactures, who stated that there was just as much sweetening power in one as the other, that chemically they were the same, looked exactly alike, and that so far as wholesomeness was concerned there was no difference. -ED.]

FORMIC ACID IN HONEY; BEE-STING POISON; WHAT IS IT?

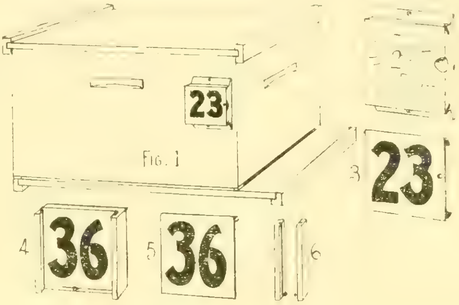
Mr. Root:—Referring to formic acid in honey, page 846, let me state the result of our investigations here on the continent. Honey contains about .002 per cent of the officinal formic acid. How it comes, with other etheric substances, into the honey is not yet quite clear. The most probable theory is that it is absorbed from the atmosphere in the hive. Every bee-keeper has smelled the specific aroma which comes from the hive when disturbing the bees by opening the hive. The disturbed bees open their reservoirs of poison, as any one can easily observe. He will notice how the bees raise their abdomens, opening the cavity of the sting. All the atmosphere of the hive is impregnated with the etheric substance, including formic acid, which is also the reason that now the honey and now the pollen will be spoiled on account of the antiseptic qualities of these etheric substances. As to the poison causing the pain and swelling of the stings, the formic acid is the least exciting cause. The chief substance is a well-defined albumic toxin, very similar to the toxins of bacteria; or, to be exact, the pain is caused chiefly by the formic acid and the other etheric substances, while the swelling and sometimes graver symptoms are caused by the organic toxin. To the latter the bee-keeper becomes immune; but to the first, never.
DR. BRUNNICH.
Ottenbach, Switzerland, Nov. 1.

DECOY HIVES; A MIXTURE OF COMB AND EXTRACTED HONEY.

It may be of interest to some of your readers to know how we catch bees out here in Nebraska. Why, we just place boxes or hives up in the trees out in the woods, and the bees go into them—our neighbors' absconding swarms. I thought of this when I read of "furious swarming at Medina." Nearly all of my bees were procured in this way. They have made a fine lot of honey which I sell at 15 cents per lb., placed nicely in gallon syrup-pails. I first put in some nice comb honey, then fill up with strained honey until it weighs a dollar. I make it all up into dollar packages; customers take it readily in this way.
Williams, Neb. MRS. JOSEPH LAMB.

ARTIST MURRAY'S IMPROVED NUMBERING-TAGS.

Mr. Root:—Utilizing your idea of the metal binding on your movable bottom-board, I suggest that a numbering-tag for hives be made which is easily slipped off or on by inserting a screwdriver or any thing handy in the hole, underneath which is a scooped hole as shown. The block can be made very cheaply in long strips, and cut off any size, and the metal cap or tag to match can be nailed to any portion of a hive, and numbers or tags interchangeable with any other. No blowing away or hanging askew; need not be made to fit tight. R. V. MURRAY.
Cleveland, O.



SHEEP IN LIEU OF LAWN-MOWERS.

I am anxious to know how it would do to put two or three sheep in the bee-yard. I dislike to have the grass grow up among the hives. C. J. PEARSE.
Port Terry, Ont.

[You can put sheep in a bee-yard to crop down the grass, and they answer excellently for the purpose; but you can not have grapevines, or other foliage of which they are fond, within their reach. They will eat almost any thing green. Of course, they will do no damage to trees where the branches are high enough so they can not get at them.—ED.]

I wonder why Mr. Danzenbaker has not tried turning his brood-chamber bottom up instead of taking out the frames and inverting them. Would it not save him and the bees lots of trouble?
Wells, Minn. J. V. WOODWORTH.

[Frames can be reversed *en masse* by turning the hive over; but in the case of the Danzenbaker the thing is not practicable. If you see a hive you will see why.—ED.]

NOTES OF TRAVEL

BY A. I. ROOT.

While in Los Angeles we had many side trips, through the courtesy of the bee keeping friends. Mr. J. W. Ferree, of Los Angeles, was especially busy in this work. I do not know whether he owned the fine rig that he took us around with or not; but I suspect he got it at a livery-stable. Never mind. We were royally looked after, however it was. In one part of the outskirts of the city there is an industry that interested me greatly. It is not bees, but pigeons or doves. We are told there are about 40,000 bees in a good colony. Well, some one said this colony of doves comprised something like *30,000*, and they are all in one spot. The air was literally filled with them; the roofs of buildings in the vicinity were covered with them, and they were all the time down at the creek getting water by the hundreds if not thousands. Here is one class of animals or birds, if you choose, that does not seem to be troubled by being massed in great numbers. I think the man's business is raising squabs. Perhaps some of the Californians will tell us more about it. I was told there did not seem to be any difficulty about having so many all in one place, but perhaps it is because, like the bees, they spend a great deal of their time in the open air on the wing, where there is no crowding. Some of the houses for them were very pretty, with the entrances made of different colors. I do not know whether pigeons pick out their own domicil as bees do, by instinct, or not. But it was a revelation to me that this great number could get along together without contagious diseases getting in. Somebody said there was some complaint made that they polluted the waters of the creek. I do not know why such an enterprise should be right in the edge of so large a city. Why not have it right out in the country? By the way, could not a good business be done manufacturing home-made guano at the same time?

Friend Ferree dropped me at Mr. G. W. Woodbury's, in Glendale. Our older readers will remember I have written him up once or twice before. When I first visited him he did not have any wife. Of course, I remonstrated, as I always do. A few years afterward I found him a happy man with both wife and baby. Well, when I called on him about a dozen years ago he was using his leisure moments in leveling down the mountain so as to make a nice little spot for his home. I believe his ranch is all on the side of the mountain. Now, I am not certain he has been leveling off that mountain all the while for a dozen years past, but I found him still at the same job, and a very pretty apiary indeed was planted on that leveled ground. By the way, his good wife is now the bee-keeper. She takes care of the bees, and does pretty nearly all the work, if I am correct, while friend W. can look after the town waterworks, level down the mountain with his Daisy wheelbarrow, or do whatever he likes. Don't you see, friends, what a wonderful advantage a married man has from *beginning* to *end* over the other fellow who "fooled away" his life without getting married at all?*

You might think that the soil from the mountain would not be very fertile. On the contrary, many things grow with wonderful luxuriance in this pulverized granite; and some things grow without irrigation. Mr. Woodbury showed us where he had planted *Lippia repens* on the outside edge of the bank, where the loose dirt stood at a steep angle. He thought it was *Lippia nodiflora;* but Prof. Benton, who was one of our crowd, called it *repens*, and I assure you it was a very pretty sight. In time it will probably hold the loose sides of the bank compactly in place, while it makes a beautiful soft green carpet.

I left the crowd at this point, and friend W. took me back to the city with his own conveyance. I wanted to go past a celebrated strawberry-farm, and it was actually my privilege to see two strawberry-fields of forty acres each. Of course, they are irrigated. The arrangements for gathering the fruit, and sorting it, for applying the water, and doing every thing that needs to be done, is carried on like a well-managed factory. Telephones run all over the plantation so as to save steps. It is all leveled off like a brickyard, and the irrigating is done with mathematical precision. There may have been a weed or two in the eighty acres of strawberries, but I did not have a chance to see them. I did not see the owners of the ranch, so I do not know whether it is paying; but it was worth going a long way to see such an object-lesson in the way

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*And this reminds me that, while I was walking along the streets of Los Angeles, a beautiful woman stopped me and asked if I was not A. I. Root. Now, some of you may object; in fact, I know one other woman who objects frequently when I call her "beautiful;" but when I add, "Well, you are beautiful in *my* eyes, any way," she says, "Oh! well, that is all right; but I feel kind o' sorry for you, after all." Perhaps I had better say that the woman who accosted me with a smile that made my heart bump was beautiful in *my* eyes, any way. After I told her I was the man in question, she said, "I am Mr. J. P. Ivy's wife. You know him pretty well." Before I thought, I said right out, "Why, has my good friend Ivy gone and got married?" I do not know but I colored a little, and perhaps she did too; but it only had the effect of making her still more handsome (that is, in my eyes, you know); and then we both had a good laugh. Then she added, "Married! I should think so—look here." Then she called my attention to a little girl by her side, whom I had hardly noticed. Now, may be you think I am getting along pretty fast; but when I got a good look at the girl I thought, but I did not say it this time, she was, if any thing, even *better* looking than her mother. Then I remembered how I had exhorted friend Ivy with a lot of other Arizona bee-keepers to get married and have wives, and be somebody and to amount to something in the world. Of course, it does not follow that friend Ivy got married just because *I* told him it was a Christian duty he owed to humanity to do so; and I really hope that those other fellows who did not take my advice will come to their senses when they get such a glimpse as I did of Mrs. Ivy and the little girl.

of high-pressure gardening, and to have actual demonstration that some things can be done right out in the fields as beautifully and as accurately as our catalog people often do it on paper.

On page 855, in describing the Agua Caliente springs I mentioned a three-days' trip across the desert; and I wish right here to tell you a little more about that trip. I was beginning to feel a little bit lazy and dull under the influence of a long-continued temperature of over 100 degrees. I told my brother I should have to get to work at something to keep my blood circulating. He thought the hundred miles across the desert, with a mule team, would be the thing. I confess I looked forward with considerable anticipation to such a trip. The greater part of the distance there were no dwellings whatever. In fact, it was only at long intervals we could find water for the mules. At one place we had to dig down in the sand in the dry bed of a mountain stream to find water. Over a great part of the trip there was little or no vegetation, for in these places there is no rain to speak of for almost a year at a stretch. Occasionally, however, great floods come across these tracts from cloud-bursts on the mountains near by. Different mountain-peaks come into view and disappear. As some of these mountains are visible a hundred miles away, it gives the traveler a chance to preserve his landmarks if he watches carefully the contour of the mountains around the horizon. At one place we saw the head of a giant, visible almost all day long. With a little imagination the features were very classic, and sometimes handsome. The principal game we encountered was quail and cottontail rabbits.

As the wheels made their way through the sandy trail they left a kind of V-shaped mark or furrow. Pretty soon I began to notice queer hieroglyphics in the bottom of this V-shaped furrow in the loose sand. My brother told me they were caused by reptiles that got into the wagon-track and could not get out. Sometimes they would wiggle along a great distance. I was especially interested in the trail left by what is called the side-winder rattlesnake. My brother said it was the same thing that is often called a hoop-snake. May be you heard about it when you were a child. This queer but dangerous reptile makes its peculiar track by elevating a part of its body in the form of a corkscrew, for its trail in the sand looks exactly as if a large corkscrew were turned along in the bottom of the sandy furrow. There is a series of letter S's, one after the other, a regular distance apart. I had a great curiosity to see one of these "side-winder" rattlesnakes, but my curiosity was not gratified.

When we got near the city of Phœnix there were, occasionally, little towns, or perhaps a store and postoffice, and a well, as a matter of course, to furnish water for man and beast. These stations were literal oases in the desert. At one of them I noticed some beautiful pigeons. They had a tropical look, and were different from any thing I had ever seen before. The landlord explained that they were brought there by a relative from some foreign land. After dinner, while we were sitting in the shade of the porch, one of these beautiful birds came up near me, rolled over on its back, clasped its hands, I was going to say, but they were really dainty little feet, gasped once or twice, and in just a moment was still in death. Our host explained that he had just been poisoning some ants with strychnine. The bird was fond of ants, and, as he supposed, picked up some of the poisoned ones. We can not be too careful about using poisons. This reminds me that the editor of one of our great agricultural weeklies recently advised a subscriber to poison his neighbor's bees because they annoyed him. I was surprised to find an editor who either did not know or did not care whether he was recommending the breaking of a clear and distinct law of the land.

The question has often come up in these desert countries as to whether one can grow crops successfully, and pump the water needed from a well with a steam-engine. My brother and I visited a ranch near Tempe, where a section of land was growing alfalfa very successfully by pumping the water. I think they had to raise it with the engine some forty or fifty feet. Of course, the expense is a little more than getting water from the irrigating-canals. But in almost every locality that depends on irrigation, there are times when water is wanted most and one can not have it. This man was independent. I do not remember the power of his engine; but the engineer told us that, by working a little over hours occasionally, the whole section can be given all the water needed. An acre well set to alfalfa is considered in that locality to be worth $100. Some farms are sold for more than that. Alfalfa-growing is so much of a business in the Salt River Valley that it is no uncommon thing to find people pulling up their fruit-trees in order to grow alfalfa. The alfalfa is much less labor to harvest and sell, and a good many think they get about as much money one year with another as they do from their fruit-farms. Fruit-growing is making some progress around Tempe, Maricopa Co., but not as much as many thought it would at one time. The Rev. Mr. Close, who lives at Tempe, showed me an object-lesson by way of high-pressure gardening that is worth considering. Less than ten years ago his wife planted some date seeds just for the fun of it. They came up promptly, grew, and with very little care they are now producing great bunches of most luscious fruit. If I am correct, one or more of these date palms are already giving crops of 100 lbs. of fruit that sold for 25 cents per lb. Twenty-five dollars for the crop on a single palm-tree scarcely higher than your head! The experiment station, a few miles distant from where this was done, is now experimenting with all the promising date palms that can be collected from different parts of the world. Some of the plants, or little palm-trees rather, are worth *ever so many dollars* each. Wonderful results are now and then achieved with these tropical fruits; but, as I have said, the average farmer seems to decide that alfalfa-growing is surer than almost any thing else.

OUR HOMES,

BY A. I. ROOT.

Husbands, love your wives, and be not bitter against them.—Col. 3: 19.

On page 503, June 1, I repeated a story I gave to the Spanish mission school in Cuba, our good brother Frazier translating it as I talked. In speaking of the failure of a certain charitable institution gotten up by the learned doctors, with the aid of all the most scientific appliances, I said:

> The whole trouble was this: The poor babies hungered, not only for plenty of milk, but they wanted to be *loved* and *kissed* and *cuddled* and *talked to*. When they opened their eyes in this cold world, and found no one who loved them as babies ought to be loved, they said in their infantile mind, "Why, we might just as well die now as at any other time. Nobody loves us, and nobody cares for us; and what is the use of living?"

During the six months that have passed since I told that story, it has been much on my mind; and I have been impressed again and again that it is not only *babies* that die for want of somebody to love them, but it is often grown-up people, and especially grown-up women — yes, wives and mothers. The babies I mentioned died of starvation—that is, one kind of starvation—when they were amply supplied with the best and most nourishing food the world of science could furnish: they were starving for a mother's love.

There has been considerable comment on the matter of the number of women who are in the asylums for the insane; and, if I am correct, a large proportion of them come from farmers' homes. Now, I am impressed that this insanity among wives and mothers is right along in line with the cause (or perhaps, rather, the *reason*) why those babies died in that palatial asylum. They died because they craved and hungered for the love they did not get. The babies could not live and thrive unless they were loved and kissed and cuddled and talked to, and called pretty names. Why, my good friends, if there is a baby in your home, no matter how old or how young — that is, it does not matter so very much how young — you can, if you try hard, make it respond to loving words.*

If there is no baby in your own home, hunt up one among the neighbors somewhere, and begin to cultivate its acquaintance. We not only make the *baby* grow and thrive by finding somebody besides its own mother who loves it and welcomes its presence into this bright world of ours, but it will make *you* grow physically, morally, and spiritually. Now, herein is this great truth, that not only is the baby or wife benefited by kisses and loving words, but the one who loves is in like manner benefited. Much has been said of late about the benefits of pure air — outdoor air, for instance; and since these days of the typhoid-fever epidemic, pages have been written about the importance of pure drinking-water, or boiled water, in every neighborhood where typhoid fever is prevalent — the use of distilled water for drinking, where it can be had, etc. But, dear friends, I am persuaded, and I think the Holy Spirit is prompting me when I say, that loving words and loving actions are of as much importance as pure air and water and wholesome food; in fact, a loving heart should be prompted to take care that the air, water, and food be of the best.

Now, I am going to talk plainly to-day, and some of you may object a little. The first year you were married you looked after the dear little wife carefully. You gave her kisses and caresses — called her pet names, without stint; and then to be a manly husband (by the way, what is grander in this world than *noble manhood?*) you went to work and provided the dear little wife with every thing she would be likely to need, before you went to work. If out on a farm, and you two were alone, you provided the best of wood and water near by the little woman you loved, so as to spare her useless steps or exposure; you provided her with warm and comfortable clothing: if she was subject to cold feet, as many women are, you at times took those dear little feet in the warm palms of your great manly hands, and warmed them up; and straightway you looked after the stockings she wore in wintry weather; then you examined her dainty little shoes, and recommended warmer ones; and as winter came on, you investigated the matter of overshoes. If she was obliged at times, or preferred as a matter of choice, to look after the chickens, pigs, and may be a cow, you probably gave her some warm stockings and felt-lined rubber boots made expressly for women.

Now, I do not know exactly *what* you did the first year you were married, for it was

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*Something tells me just now that my sermon to-day is hitting *me* a pretty big clip. Within a few steps of where I now am there is a bright pretty baby that fairly bounds with enthusiasm when he catches a glimpse of his *grandma*. I do not know but he loves his grandma more than he does anybody else in the world, his own mother not excepted. Well, the baby and I are at perfect agreement in one respect at least; but what I was going to say just now was that his grandpa does not get in to see him often enough but that he throws his little head one way and the other to see if his papa or mamma, or, better still, grandma, is near by to encourage him when his *grandpa* takes him in his arms Just as soon as I get this article written I am going over to take some of the same "medicine" I am prescribing for my readers.

probably a good long while ago forty or fifty years, for example. At that time they did not use furnaces in the basement to keep the floors warm as they do now; so I think we shall have to jump ahead all these years and come up to the present time. We will suppose you are about 64 years old (just my age), and that your wife is a year or two younger. Dear brother, do you now, after all these years, take those cold tired feet in the big warm palms of your hands—those tired feet that have traveled *unceasingly* for you and yours all these forty or fifty years? Do you now often take that dear faithful woman in your arms as you did when you were first married? Have you been in the daily habit of holding her thus and kissing the gray hairs as they came to view one by one? If you have not, then let me tell you you have not done *every* thing you could to save her from sickness and death. May be in all these years you have paid out much money for doctors' bills that might have been saved had you loved her and kissed her and caressed her oftener than you have done. You may urge that a busy farmer or mechanic has no time to sit down and cuddle his wife, and call her pretty names as he did when they were young. But, my good friend, such things might save a "heap" of travel in the night in going after the doctor. They might save the expense and presence of a hired girl in your home. Why, I have *heard* of farmers' wives who had not received a loving kiss from the busy pushing man of the house in a *whole year*. No wonder that trouble, sickness, and death invaded the home.

And, my dear good friend, there is a worse thing threatening the homes of our land just now than sickness and death; yes, perhaps I might say a worse thing than insanity. Go and visit your county infirmary; take a look at the wives and mothers assembled there. Such a fate is sad, I admit; but that of an unhappy *divorced* man and wife is even worse. Our dailies have just told us of a woman who married another man in just *twenty minutes* after the divorce was granted! Well, I suppose she could do so legally if she chose. Now, the dailies did not tell us any thing about what went before; but we may guess there was no particular trouble with her former husband except that he *stood in the way*. She had placed her affections (?) on another man; and when she got rid of her lawful husband she fairly "hustled" to get married to man No. 2. Years ago, when a schoolboy, I came to a problem in algebra where the result could be projected and written on the blackboard without solving the problem at all. You started out two or three steps until you saw the way the thing was working, and then jumped away over to the conclusion, and got exactly the same result as if you had gone through a pile of figures. Now, we may safely predict (in like manner) that this woman who got married in twenty minutes after her divorce will be looking out very soon for husband No. 3; and if she is not stopped, nobody knows how many there will be. When Satan gets a pupil well under way, he does not often let that pupil go. I do not know whether the first husband was at fault in not loving his wife; but I think it quite likely he was largely; but perhaps the woman was more at fault.

Who can tell what pain and anguish of spirit a parent may feel, especially when this union before God has been sealed and cemented by raising a family of children, when either parent is obliged to feel that the other is unfaithful! A friend once told me some of his experience. Satan tried to get the poison into his heart. But he recognized him, and prayed in anguish, "Get thee behind me, Satan." His story interested me at that time, because it gave me a glimpse of the suffering and anguish that may rend a faithful and devoted heart. It was a rather strange experience; and as it may prove to be a warning to some others I am going to let him tell you about it in his own words as nearly as I can remember.

THE MAN'S STORY.

When I was away out in the mountains of California, a little homesick, Satan brought up a long-forgotten memory of the past. He said, "Of course, your good wife is a model woman, as all the world knows; but away back, some forty years ago, if you will just think of it, there was at least a *little* time when she was not as loyal to you as she might have been."

I repudiated the suggestion at once, and tried to get it out of my mind; but in spite of every thing I could do, especially when I was traveling alone among strangers, memory (or perhaps we had better say Satan) went to picking up little bits of facts (at least the adversary asserted they were *facts*) and piecing them together until I was not only miserable, but began to cherish feelings that were pretty nearly unkind toward my dear devoted wife. I decided I would question her in regard to the matter, even if it was away back ("ages ago") as soon as I got home. When I looked into her dear eyes I felt ashamed of myself. But Satan had got a little bit of a foothold. Every few days memory would supply something further in regard to the matter until quite a little structure had been built up. At last I decided, even though it should annoy and pain her, I would tell her what was going on in my mind; and I felt so ashamed of myself, while bringing up something of years ago, that I almost had to do it with downcast eyes; and, oh how quickly Satan's fabric vanished when she looked me in the face with a happy innocent laugh and explained every thing! I had forgotten the order of events, and got things mixed, and she was entirely innocent of the whole matter. For several days afterward, when I went into the house she would look up to me with a most bewitching smile and say something like this:

"And so you *did* think, dear old huz, that there was a time in my life when I actually looked about a little to see if there were *really* any 'handsomer men' about than your dear old self? Now, aren't you ashamed of yourself? Be honest."

"Yes, dear old girl, I *am* much ashamed of myself—ashamed to think that I ever let Satan crowd into my heart a suggestion that you were not, or at some time in the dim past had not been, fully worthy of the place you occupy in my *heart* and *soul*."

"Now, Mr. Root," said he, "I have mentioned this simply to tell you of the glimpse I then had of the *torture* that must wring any true man's heart when he finds his wife has been listening, even a little bit, to the whispers of Satan; to think she has been listening, as mother Eve did, to the serpent in the garden".

In regard to the above story, I suppose many of the women-folks will want to "speak right out in meeting here." *Mrs. Root* would be one of them if it were not for the fact that this speaking-out would hit your old friend A. I. Root a most fearful clip. What these good women—these wives and mothers—would say is something like this:

"Mr. Root, how much better is it in God's sight for a *man* to be unfaithful than for a *woman* to be untrue?"

I shall have to answer, even though I lash *myself*, that I believe a man should be as pure in thought and deed as he demands that his wife should be. God have mercy on me, a sinner. Not a sinner *now*, thank God, and not a sinner in that way, since I chose the Lord Jesus Christ as my guide, helper, and *redeemer*. But I *was* a sinner away back at the very time when I (like every other man) *demanded* of my wife something away up above what *I* was. And now after I say that, I am persuaded the greater part of the divorces come about because wives are not loved as God intended, and as our text admonishes us they should be loved.

Now a word more about the wives and mothers who go about with cold feet. Many of you urge you can not afford a furnace, or, better still, steam or hot water, in your basement. But, my good friend, have you reflected that a funeral—at least a funeral as generally managed—will cost as much as a furnace, or even more? Instead of taking a trip to the undertaker *after* your wife is dead, suppose you take a trip to the plumber while she is alive and well. Do something this very day toward preventing your wife or mother, the jewel of your home from going about any longer with cold feet. If she says her feet are not cold, or not cold enough to do any harm, be doctor for a while. Take her feet often up across your lap; warm them up by the cookstove (or some other place) and see that they are *kept* warm. The kisses and pet names are all right providing they are manly and consistent. After you have told her you love her, you might add that you love her *still*, even if she *is* getting gray-haired and wrinkled to the outside world. After you have said in words that you love her still and that she is not gray-haired and wrinkled in *your* sight, prove it in a manly way.

Somebody has said there are farmers who do not take as good care of their wives as they do of their domestic animals. It would be a loss of money to let the latter go unprotected, or without food and water. Dear me! I wonder if it would not be a loss of money in the end to neglect the dear wife. And what is the money *for*, after all, when the presiding genius of your home lies cold and still in death? Then, perhaps, if not before, you will realize how worthless in comparison is money or stock or a farm.

Of course, I mean that all I have said shall apply to husbands as well as to wives. But women, as a rule, are given to loving as well as craving for love. Some of them, perhaps, *are* neglectful of their husbands' happiness and comfort. Yes, there may be quite a number who forget to say, "You are a dear old treasure for going out in the cold, and working so hard to keep me here indoors with all these comforts." Perhaps some of the dear women may kiss the gray hairs a little oftener, and perhaps lift the rough hands, hardened with toil, to their lips occasionally, in recognition of what these rough hands have wrought.

When I was about twelve years old I took a great liking to chemistry. A bright young man taught our village school. He was, by the way, an expert carpenter; and when he found out, by getting acquainted with me in my class in chemistry, that I was making sundry experiments at home, he suggested one day after school that he might help me in getting up my home-made apparatus. Of course, I was highly delighted; and under his skillful management with tools, my experiments were a success. Well, after he had made me happy he edged around to another side of the house where my grown-up sisters were; and I can remember feeling plainly after a while that I feared he did not care so *very* much about the chemical apparatus after all. This young schoolteacher and one of my sisters will, in a few days, celebrate their golden wedding, having been man and wife for fifty years. Well, this brother-in-law of mine has been, all his life, remarkably skillful in all sorts of handicraft. Away back fifty years ago it was the fashion to make mottoes with what they called perforated paper. These mottoes were sewed through with beautifully colored yarn called crewel. Of course, brother James had to try his hand at the new art;* and one day in opening a book that belonged to my sister I found the prettiest piece of perforated-paper work that I had ever seen. It read:

Thine till the heart in death is cold.

It was about the time these two people were engaged. I was a boy of about fourteen; and it struck me at that time as a wonderful piece of artistic beauty. Not only the handwork and design, but the thought it embodied—that this bright skillful young teacher should say to *my sister*, that he placed all he had, and all he was, in her care and keeping, until that beating heart grew *cold* in *death*—was to me a piece of sublimity and heroism that was to be admired and emulated.

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* Mr. James G. Gray was, at the time of which I was writing, holding evening schools for teaching penmanship. He also gave lessons in ornamental penmanship drawing.

No doubt you have discovered there is something Quixotic in my makeup. I have read Don Quixote again and again, and, I might almost say, laughed and cried over it. A year ago while in Cuba I had aspirations to be able to read Don Quixote some time in the original Spanish. Well, it is a grand good thing to be Quixotic within certain limits. It was my good fortune to be with this sister and her husband more or less for a good many years. When I taught my first school I made my home with them, and with an older sister who was also recently married.

Now, I want to say just a little more about that young schoolteacher. He was not only handy in carpenterwork, but he has always been handy everywhere. He could not only build the handiest house imaginable for a woman to do her work in, but he could wash and bake, and, I think, do every thing a woman usually does. That motto of his was in my mind, and I used to watch him for years afterward to see how well he lived it out. He was up early in the morning, and I think he invariably made the fire. We lived in the back woods then. He started breakfast; had plenty of wood in the stove and plenty in a neat tidy wood-box; he had the water handy; he did not spill any ashes nor make any litter. Mrs. Root is a model housekeeper. Everybody says so; but she says herself she can not keep a house as neat, and with so few steps, as my sister who married the schoolteacher; and she thinks it is largely due to the assistance that the schoolteacher has always given to his wife, not only in doing the work, but in *planning with* her for the best and shortest cuts for doing housework.

Now, in closing permit me to say there is, in my opinion, nothing in this world to be compared with, as a helper in having husbands and wives love each other, as the *gospel of Christ Jesus*. Mrs. Root and I read something from the Bible, at least once every day of our lives. Then we kneel together (we are now living all alone, as the children are all away) and ask God to help us in using our declining years in such a way as will give him most honor and glory. This daily reading of God's word, and kneeling together in prayer, has done more to give us happiness—yes, *health* too—than any thing else in this world. "Thou shalt love the Lord thy God with all thy strength, with all thy soul, and with all thy mind, and thy neighbor as thyself." Now, the thing to do is to put love to God first and foremost. If we do this, love to our neighbors will follow.

And now, seriously, is there any other *neighbor* in this whole wide world so *near* and *dear* as the woman—or, perhaps we had better say, companion—whom God gave? Something suggests to me right here that my talk this time is in very truth a "*home* paper."

BRO. WHITCOMB'S NEW LIFE—MORE ABOUT IT.

Let me explain that Bro. Whitcomb wrote to Bro. York some letters, which the latter forwarded on to me, saying he felt sure I would be glad to read them. After getting my letter he wrote to Bro. Whitcomb for permission to use them in GLEANINGS. Below are the letters referred to:

Bro. York.—You have my permission to do what you please with the letter referred to. I am not ashamed of any thing connected with the matter, and if it could do any thing toward leading any soul to Christ I shall say, "Glory to God!"

I thank God that things look brighter, and the time is drawing nigh when my prayers will be answered. I start for Louisiana to-morrow morning, and I shall take my Bible and religion with me. I have a brother down there who is out of Christ. Pray for me that I may win him over to the right side of the cross. We had a praying mother whose prayers have followed me through four years of cruel war, and more than half a hundred battle-fields, and then on through life. To-day I do not know how I should have lived without them.

Yours for God.
E. WHITCOMB.

Brother York.—During last August some Chicago fellows, the Olivers, opened up tent meetings at this place, and among other results I forsook a lifetime of sin and began to serve God in earnest, since which time I have had the usual prayer-meeting and other means of grace to attend to, and have the finest Bible-class in the Sunday-school you ever saw. I know that you will say amen to that.

No man or woman has been able to handle and investigate the organization of the honey bee for any length of time without being greatly impressed with the wonderful wisdom of God, and his most wonderful workings. I am yours very truly,

Friend, Neb., Nov. 11. E. WHITCOMB.

After relating his experience when coming out of the tent, as given in the Dec. 15th issue, Mr. Whitcomb adds:

I got on my knees before God, and prayed the prayer of the publican, "Lord, be merciful to me a sinner." Then his satanic majesty appeared and said, 'Ed, you'll make a fool of yourself. You can not run a newspaper and be a Christian." But I said to him, "If I can not, I'll let it all go for God." And I tell you, brother, oh how abundantly God has blessed me, and he blesses me every day with showers of the Holy Ghost. My work is easier, and I am able to do it and praise his holy name at the same time. The things that I once loved I now hate, and the things which I once hated I now love. O my brother! what a transformation! It is a religion of the heart and not of the head.

The family altar has been established; and so long as God will continue to bless us, so long will it remain, and so long will our prayers ascend to Heaven for those who are near and dear to us. I know that God does hear and answer prayer, and I must not expect to get through the few years that yet remain for me without trials and temptations. If God wishes to try me I am willing that he should do so.

Perhaps there may be a little repetition; but I am sure our friends will gladly overlook it.

Now a word in regard to his paper. This question has often come up among new converts. Years ago the editor of one of our county papers, who had taught infidelity more or less through his columns for years, accepted Christ on his death-bed as his Savior. He sent for me, and told me about his change of heart. I then plead with him to give me something before he died. for publication in the paper of which he was editor. He said he was too weak then, but would give something later. But I felt so sure he never would that I begged him to permit me to make public through his own paper his repudiation of infidelity and acceptance of Christ as the Son of God and the Savior of mankind. He was not willing to do this; I plead with him till he cried so vehemently his wife and daughters interposed, and declared I must not prolong my visit. He was willing to say to his friends that he had renounced his skepticism and had become a Christian; but he could not consent to come out in the paper he had been editing so many years, and tell of his new birth. At his funeral, when the clergyman announced in his sermon that Mr. G. accepted Christ before he died, a man at my elbow said, "That is a lie." After the sermon I remonstrated with him, and he said something like this: "I can not believe, from what I know of Mr. G., that he ever accepted Christ as the Son of God—surely not when he was in his right senses."

Note the contrast. Mr. Whitcomb says if he can not edit a newspaper successfully, and put his Christianity into that paper, he will let the newspaper go and every thing else, "all for God." Now, then, will the Christian people stand by him in his new departure, and see that his paper, *The Friend Telegraph*, is a success.

HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1904. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, $1.25; five for $5.00. Breeders of either race, $3.00 each.

W. H. Laws, Beeville, Texas

Geo. J. Vande Vord

Queen-breeder. **Daytonia, Fla.**

4,000,000 PEACH-TREES

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases, and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address **J. C. HALE, Winchester, Tenn.**

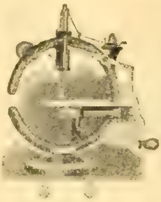
Chas. Israel & Brothers

486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.



Start the New Year Right.

Begin by sending for one of these Pony Sewing-machines. Perfect stitch. Will do all plain sewing. Hems sheets and pillow-cases, and is just the thing for little girls. There is nothing else that will please them so well and so long. Sent for only

$2.85,

postage paid, to any office in the United States. To Canada, 30 per cent duty, or $3.71.

F. J. ROOT, 90 West Broadway, N. Y.

SWEET-POTATO SEED

Sound, bright stock; most popular varieties. Send for descriptive price list. :-: :-:

L. H. Mahan, Box 143 Terre Haute, Ind.

DON'T UNDERTAKE TO CUT THE

No. 7 top wire on Page Stock Fence with wire-cutters. You can't do it, and you'll break your cutters.

Page Woven Wire Fence Co., Box S, Adrian, Michigan.

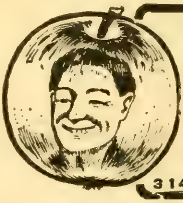
EDUCATED TREES

LAKE MICHIGAN
BENTON HARBOR

BRED FOR BEARING

TRUE TO NAME because all our Buds are cut from our own "Fruit Belt" Bearing Trees. **Illustrated Catalog free.**

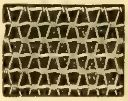
WEST MICHIGAN NURSERIES,
Box 63, BENTON HARBOR, MICH.



The Fruit Grower, published at St. Joseph, Mo., will be sent 1 year if you send 25c and names of 10 farmers who grow fruit. "The Fruit-Grower is the best fruit paper we have, East or West."—Prof. Price, Dean Ohio Agl. College. Illustrated. Regular price 50c a year. For sample address

FRUIT-GROWER CO.,
314 S. 7th St., St. Joseph, Mo.

"This for That" Trade anything you have for anything you want. Get our gigantic paper which prints thousands of exchange advertisements. Six months' trial subscription, 10 cts.
"THIS FOR THAT" PUB. CO., O-190 Star Bldg., CHICAGO.



FENCE! ***STRONGEST MADE.*** Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO.
Box 101. **Winchester, Indiana, U. S. A.**

Cuba.

If you are interested in Cuba and want the truth about it, subscribe for the

HAVANA POST,

the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

Did You Read This Notice in Nov. 15 Gleanings?

The Plant and Seed Business of The A. I. Root Co.

After having sold vegetable seeds and plants for almost 20 years, I reluctantly announce that I am about to give it up. In fact, our seed department has already been sold to E. C. Green & Son, of this place. Many of you are somewhat acquainted with Mr. Green from his writings in *Gleanings* and other agricultural papers He was for many years connected with the Ohio Experiment Station, and had charge of the department for testing new vegetables. He is also originator of Burpee's tomato, **Fordhook Fancy;** also several varieties that are offered by Livingston. In fact, he has all his life been connected more or less with originating new plants and vegetables. The son is now in our employ, where he can have daily consultation with me in regard to getting hold of the minutiæ of our seed business.

Permit me to add that, before the step was decided on, quite a lot of garden-seeds were grown expressly for us. By having them grown to order we are sure they are not only fresh, and true to name, but we are enabled to give very much lower prices than where we are compelled to buy our seeds from some other party. Our successors, E. C. Green & Son, will have all of these specially grown seeds. Those who have purchased them from us during the past two or three years know how well they have turned out.

A. I. ROOT, in Gleanings, Nov. 15, 1903.

In taking up even the seed business of A. I. Root we feel as if we were dealing with, not merely his customers, but with his friends. But we intend to make them ours if square, honest dealings will do it. We, therefore, respectfully solicit the seed trade that has been Mr. Root's.

E. C. Green & Son, - Medina, Ohio.

Have you ever seen the **Fordhook Fancy Tomato?** It is unique, a **NEW CREATION** in tomato; something different from any other tomato grown, and, withal, an extra good one in size, shape, quality, and earliness.

CUT THIS OUT AND MAIL TO US

January, 1904.

E. C. GREEN & SON,
MEDINA, OHIO.

Dear Sirs:--I am a buyer of Vegetable Seed, and shall be pleased to receive your catalog for 1904. Also send with catalog, free of charge, One Package "Fordhook Fancy" Tomato Seed for trial.

Yours Truly,

NAME ____________________

P. O. ____________________

CO. ____________________ STATE ____________________

OUR BEST OFFER THIS YEAR

The Ladies' Home Journal, (Published Monthly)
The Saturday Evening Post, (Published Weekly)

BOTH FOR A FULL YEAR FOR $2.25.

Of all the magazines published in America **The Ladies' Home Journal** has the largest paid circulation of any monthly ; **The Saturday Evening Post** the largest paid circulation of any weekly. The price of the Journal is $1.00 ; the price of the Post when ordered by single subscription is $2.00. **YOU CAN HAVE BOTH FOR $2.25.**

* * *

C. M. GOODSPEED, SKANEATELES, N. Y.

$100.00 IN CASH

To Subscribers for

LADIES' HOME JOURNAL, SATURDAY EVENING POST

I will pay these prizes for subscriptions sent to me for either of these magazines between now and June 1, 1904:

$40.00 to the person sending the greatest number of subscriptions.
$20.00 to the person sending the next greatest number of subscriptions.
$10.00 to the person sending the next greatest number of subscriptions.
$5.00 to the person sending the next greatest number of subscriptions.
$25.00 Additional will be divided among any persons sending 10 or more subscriptions to these magazines if they do not win one of the above prizes.

Each subscription for The Journal counts one point; each subscription for Post two points. All these prizes are in addition to the liberal commission to be deducted when the orders are sent. See body of this catalog where these two magazines are listed for details of commission. In the division of the extra $25.00, each 10 points will entitle you to an extra share.

C. M. GOODSPEED, Skaneateles, New York.

CASH PRIZES:

To the agent sending me the most subscriptions to the following list of magazines (either single or in combination) we will give the following Cash Prizes May 1. 1904: To the largest list, $25: to the next largest, $20: to the next largest, $15 to the next largest, $10; to the next largest $5. We will also give $25 to be divided equally between all club raisers who send 10 subscribers and do not win any of the above awards. Cosmopolitan, *McClure's, St. Nicholas, Frank Leslie's Monthly, McCall's, and Pattern, Century, Scribner's, *Youth's Companion, new subscriptions only.

* Must not be put in combinations.

This contest is open to all, but we shall insist that all agents and publishers live closely to the rules of each publisher. See where each publication is quoted for these rules and we reserve the right to refuse all prizes and refuse the business of any agent or publisher that does not live to these rules. All questions answered by letter promptly about above offers. Address

C. M. GOODSPEED, - SKANEATELES, NEW YORK.

Sample page from our 1904 catalog. Ask for it.

BURPEE'S Farm Annual for 1904
LEADING AMERICAN SEED CATALOGUE

Mailed FREE to all who want the **BEST SEEDS!** An elegant new book of 178 pages. with hundreds of illustrations and six superb colored plates, it is now brighter and better than ever before. Many new features for 1904,—including valuable **RARE NOVELTIES** which cannot be had elsewhere. **Write TO-DAY!** A postal card will secure a copy by first mail,—provided you intend to purchase seeds; otherwise the price is ten cents, which is less than cost to us.

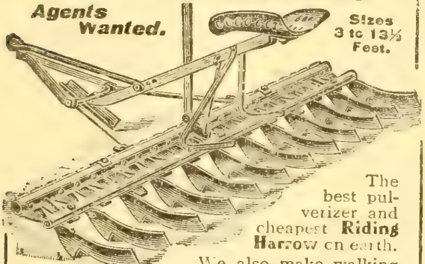
REGISTERED WAB TRADE MARK

W. ATLEE BURPEE & CO., Philadelphia, Pa.

ACME Pulverizing HARROW
Clod Crusher and Leveler

Agents Wanted.

Sizes 3 to 13½ Feet.



The best pulverizer and cheapest **Riding Harrow** on earth.

We also make walking **ACMES**. The **Acme** crushes, cuts, pulverizes, turns and levels all soils for all purposes. Made of cast steel and wrought iron—**Indestructible.**

Sent on Trial To be returned at my expense if not satisfactory. Catalog and booklet **"An Ideal Harrow"** by Henry Stewart, mailed free. I deliver f.o.b. New York, Chicago, Columbus, Louisville, Kansas City, Minneapolis, San Francisco.

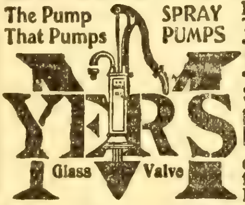
DUANE H. NASH, Sole Mfr., Millington, N. J.
Branch Houses: 110 Washington St., Chicago. 240-244 7th Ave. South, Minneapolis. 1316 W. 8th Street, Kansas City.

PLEASE MENTION THIS PAPER.

SPRAY PUMPS

The Pump That Pumps

SPRAY PUMPS

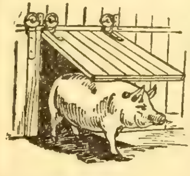


Double-acting, Lift, Tank and Spray **PUMPS**

Store Ladders, Etc.

HAY TOOLS of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers



with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, - Ohio.

Trees Free By doing a little easy work for us this winter. Not only all the trees you need, but money besides. We have matured an attractive plan. Let us lay it before you. Write us about it. Established 1869 Write for our new Catalogue. It's FREE.
GEO. A. SWEET NURSERY CO., 12 Maple St., Dansville, N. Y.

OUR SEEDS

Fruit and **Ornamental Trees, Etc.,** have been the standard of excellence for half a century. We mail postpaid, **Seeds, Plants, Roses, Bulbs, Vines, Small Trees, Etc.,** and guarantee safe arrival and satisfaction, larger by express or freight. Direct deal insures you the best and saves you money. Try us. Your address on a postal will bring you our elegant 168 page catalogue free. Correspondence solicited. 50 years, 44 greenhouses, 1000 acres.

THE STORRS & HARRISON CO.,
Box 141, PAINESVILLE, OHIO.

Strawberry Culture

A 60-page book, makes you understand the whole subject. Sent postpaid on receipt of 25c, silver or 1c stamps. Worth four times the price. Money back if you don't think so. Beautiful illustrated **Strawberry Catalogue Free.**

W.F. ALLEN, SALISBURY, MD.

Parmers Voice Great Co=Operative Club $1

Send us the names of ten friends or neighbors whom you believe will be interested in a journal standing for the farmer's best interests, and we will send you these five great periodicals each of which stands at the head of its class.

Farmer's Voice and National Rural Weekly . For forty years the most earnest advocate of all things which tend to make life on the farm more pleasurable and profitable.	$ .60
Wayside Tales . . . America's Great Short Story Magazine, 96 pages in regular magazine size of clean stories every month on fine book paper.	1.00
The American Poultry Journal The oldest and best poultry paper in the world.	.50
The Household Realm . . For 18 years the only woman's paper owned, edited and published exclusively by women.	.50
Vick's Family Magazine . The leading Floral Magazine of America.	.50

Regular Price **$3.10** FOR ONLY **$1.** and ten names of farmers as above.

For Vick's you may substitute Green's Fruit Grower, Farm Journal, Blooded Stock, Kansas City Star or St. Paul Dispatch.

Sample copies of The Farmers' Voice free. Liberal terms to agents.

VOICE PUB. CO., 113 Voice Bldg., **Chicago.**

Envelopes, printed-to-order, only $1 per 1000: send for free sample and state your business.

450,000 TREES

200 varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. **LEWIS ROESCH, Fredonia, N. Y.**

PEACH TREES

Hardy, fruitful kinds. Honest values, 5c each. Apple trees, 5½c. Concord grapes, $20 per 1000. Russian Mulberry and Black Locust, $1.40 per 1000. Rambler roses, 25c. $10 orders prepaid. Catalog free.

Gage County Nurseries
Box 847. **Beatrice, Neb.**

YOUR BUGGY DEALER

Is Against Us and we can't blame him much. When you buy a buggy direct from us you get it at wholesale prices direct from our factory and there is no chance for him to make any money out of you.

This Is Exactly What We Do

We sell you direct a buggy that has **100 Points of Merit** and we also give you what no dealer ever thought of doing. We give you

30 Days' Free Trial

that you may be more than satisfied with your bargain.

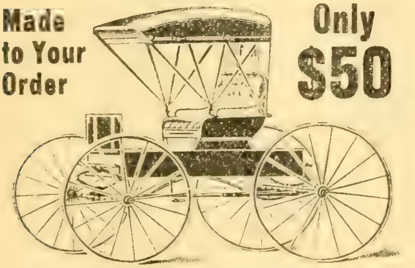
This is our Celebrated

SPLIT HICKORY Special

For 1904.

Made to Your Order

Only $50



Read and Note a Few of the Points of Merit.
all found in the 1904
SPLIT HICKORY SPECIAL TOP BUGGY.

Wheels—Sarven patent, 38 and 42 inches high or higher if wanted. Tire ⅞ inch by ¾ inch thick, round edge. **Axles**—Long distance, dust proof, with cemented axle beds. **Springs**—Oil tempered, graded and graduated, 3 and 4 leaf. Wooden Spring Bar furnished regularly, Bailey Loop if preferred. **Upholstering**—Finest quality 16 oz. imported all wool broadcloth cushion and back. Spring cushion and solid panel spring back. **Top**—Genuine No. 1 enameled leather quarters with heavy waterproof rubber roof and back curtain, lined and reinforced. **Painting**—Wheels, gear wood, body and all wood work carried 100 days in pure oil and lead. 16 coats of paint with the very highest grade of finishing varnish. Gear painted any color desired. Body plain black with or without any striping. This buggy is furnished complete with good, high padded, patent leather dash, fine quality, full length carpet, side curtains, storm apron, quick shifting shaft couplings, full leathered shafts with 36 inch point leathers, special heel braces and corner braces. Longitudinal Center Spring.

Any reasonable changes can be made in the finish and construction of this Buggy. We make it to suit the customer's taste, and guarantee it to please, no matter what the requirements are.

These specifications are given here to aid you in ordering your buggy built to order just as you want it. Many thousands make no alterations from our chosen specifications, which are the result of our years of experience in vehicle building.

Send a post card requesting our new **1904 Vehicle Catalog** and get all the details about modern buggy making, order blank and full particulars. **All FREE.**

Send for our **Free 186-page Catalog** of Split Hickory Vehicles and Harness.

THE OHIO CARRIAGE MFG. CO.
H. C. PHELPS, President.
1220 Sixth Street, Cincinnati, Ohio.

NOTE—We carry a full line of high grade Harness sold direct to the user at wholesale prices.

The Century Sprayer

a small cut of which is shown in this advertisement, offers more advantages to the orchardist, fruit grower, etc., than any other spraying outfit on the market.

Brass cylinder, brass valves, "everlasting" fabric plunger packing and the only thoroughly reliable agitator.

Cylinder 2½ ins., stroke 5 ins. Then, too, it sells at a lower price than other good pumps. Send for handsome free catalogue, showing full line of pumps and twenty varieties of sprayers.

THE DEMING CO., Salem, O.
Western Agents—Henion & Hubbell, Chicago, Ill.

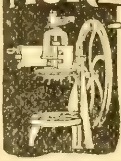
TREES THAT GROW

The best and hardiest varieties. See our prices.
Grafted Apple, 4½ cents.
Budded Peach, 5½ cts.
Concord Grapes, 2c.
Black Locust Seedlings, $1 per 1000.

GERMAN NURSERIES
We Pay the Freight

A fine Illustrated Catalog, either German or English, will be sent free.

GERMAN NURSERIES
Carl Sonderegger, Propr'tor
Box 100 **Beatrice, Neb.**



MORE HEN MONEY

MANN'S Latest Model Bone Cutter gives hens food which makes them lay. Cuts all bone, meat and gristle; never clogs.

Ten Days' Free Trial.

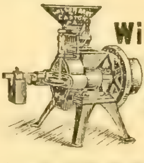
No money until satisfied that it cuts easiest and fastest. Return at our expense if not satisfied. Catalogue free.

F. W. MANN CO., BOX 37 MILFORD, MASS.

Make Your Own Fertilizer

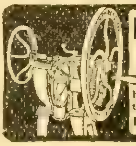
at Small Cost with

Wilson's Phosphate Mills



From 1 to 40 H. P. Also **Bone Cutters**, hand and power, for the poultrymen; **Farm Feed Mills, Graham Flour Hand Mills, Grit and Shell Mills.** Send for catalogue.

WILSON BROS., Sole Mfrs., Easton, Pa.



MAKE HENS PAY

Humphrey Open Hopper Bone Cutter
Humphrey Rapid Clover Cutter

will double your egg yield and cut your feed bill in half. Guaranteed to cut easier and faster than any other. Trial offer and catalogue free.

HUMPHREY, Mine St. Factory, Joliet, Ill.

POULTRY SUCCESS.

14th Year. 32 TO 64 PAGES.

The 20th Century Poultry Magazine

Beautifully illustrated. 50c yr., shows readers how to succeed with Poultry.

Special Introductory Offer.

3 years 60 cts; 1 year 25 cts; 4 months trial 10 cts. Stamps accepted. Sample copy free. 148 page illustrated practical poultry book free to yearly subscribers. Catalogue of poultry publications free.

Poultry Success Co., Dept. 24 Springfield, O.

A THOUSAND DOLLAR EGG

—a touching story of devotion telling how Mandy paid the mortgage and saved the farm. Tells how to make money from poultry. Also Egg record and Calendar for 1904. Mailed free. **Geo. H. Lee Co., Omaha, Neb.**

THIS IS THE ROYAL INCUBATOR

On 30 Days Free Trial.

WE say it's the best incubator made. Try it and see what YOU think. No pay until satisfied. Automatic and certain. Send for trial plan Catalog free, with poultry paper 1 year 10c.

ROYAL INCUBATOR CO.
Dept 503, Des Moines, Ia.

382 FIRST PRIZES

AWARDED PRAIRIE STATE INCUBATORS AND BROODERS

The United States Government continues to use them exclusively; also the largest poultry and duck breeders. Our catalog will interest you. Send for one.

Prairie State Incubator Co.
Homer City, Pa.

"VICTORIOUS IOWA"

A good name for the Iowa Round Incubator that so often out-hatches its keenest competitors. Any questions? Our new catalogue answers them all. It is free send for it.

Iowa Incubator Co.
Box 197, Des Moines, Ia.

IT IS A FACT

that poultry pays a larger profit for the money invested than any other business; that anybody may make a success of it without long training or previous experience; that the **Reliable Incubators and Brooders** will give the best results in all cases. Our **20th Century Poultry Book** tells just why, and a hundred other things you should know. We mail the book for 10 cents. Write to-day. We have 115 yards of thoroughbred poultry.

RELIABLE INCUBATOR & BROODER CO., Box B-49 Quincy, Ill.

Never Disappoints

When you put eggs—fertile eggs into

Ormas Incubators

you are never disappointed with the results. Not only hatches them all; but hatches chicks that are strong, lively and vigorous. Guaranteed. The cheapest, good incubator made. Catalog Free.

L. A. BANTA, LIGONIER, INDIANA

100 PER CENT HATCHES

Our new catalogue contains hundreds of them obtained by **BUCKEYE INCUBATOR** users in all parts of the U. S. Send for a copy and read the proof. It is free.

Buckeye Incubator Co., Box 64, Springfield, O.

SCRAWNY CHICKS

lack sufficient nourishment. Fatten them—make them healthy—feed them **Mrs. Pinkerton's Chick Food.** It prevents bowel trouble. It's all food—easily digested. Write for catalog of prize birds at St. Louis and Chicago 1903 Shows. Gives prices and valuable information.

Anna L. Pinkerton Company, Box 23 , Hastings, Neb.

GRANDEST FEATURE

"The removable chick tray is the grandest feature an incubator can have." Mr. Ellison, Poultry Judge, said that about the

GEM INCUBATOR

It is a convenient incubator. Easy to clean, simple to understand. Gives no trouble. Write for free catalog.

GEM INCUBATOR COMPANY, Box 53, Dayton, Ohio

BUILT TO LAST

Never outclassed—**Sure Hatch Incubators.** Built better than your house. No hot centers; no chilling draughts on sensitive eggs. Every cubic inch in egg chamber at uniform, blood temperature of fowl. It's a continual pleasure to hatch nearly every fertile egg with a Sure Hatch. Free catalogue C 10 with pictures tells lively story.

SURE HATCH INCUBATOR CO.
Clay Center, Neb. Indianapolis, Ind.

THE SUCCESSFUL

Name of the best Incubator and Brooder made. It's not a chance. They're right in principle, work right. Require least attention and give best results under all conditions. All users say it. Eastern orders promptly filled from Buffalo house. Incubator Catalog free, with Poultry Catalog 10 cts.

Succeed with a Successful

Des Moines Incubator Co.
Dept. 503, Des Moines, Ia.

TRY AN IDEAL.

J. W. Miller's incubator—made by the man who knows. It is really self-regulating.

30 DAYS FREE TRIAL

We get no money until you are perfectly satisfied. Poultry Book Free.

J. W. MILLER CO.,
Box 48, Freeport, Ill.

(Poultry supplies and thoroughbred fowls.)

$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

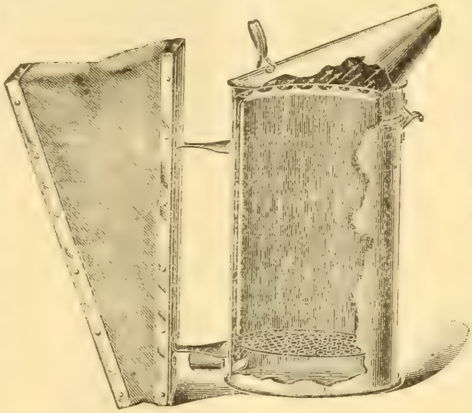
GEO. H. STAHL, Quincy, Ill.

Greider's Fine Catalog

of Prize-Winning Poultry

for 1904. This book is printed in different colors. Contains a Fine Chromo of life-like fowls suitable for framing. It illustrates and describes 60 varieties of poultry, ducks, geese, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and such information as is of much use to all who keep chickens. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.



New Brodbeck Corneil

Double-Blast Smoker.

Patented Oct. 11, 1892.

We have now made arrangements by which we can furnish the Brodbeck patented features in our regular Jumbo 4 inch-barrel smoker. It has an inner barrel, or blast-chamber, in which the fuel is placed so that the fire does not come in contact with the smoker-cup proper. In use the blast in forced against a deflector from which it is then driven between the inner and outer barrel, and also through the grate and fuel. The direct effect of this is to create a double blast—a cold and a hot—to increase the force of the blast, and to prolong the life of the smoker because the outer barrel will be nearly cold. The smoke will not be quite so dense and pungent as in the hot-blast smokers of standard pattern; but there are some who may prefer a stronger blast, even if the smoke is less pungent. Price of the Brodbeck Corneil, 4-inch size, **$1.50**, or postpaid........ **$1.80.**

The A. I. ROOT COMPANY, MEDINA, OHIO.

The Best Bee-goods in the World

are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for our catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

The W. T. Falconer Man'f'g Co.,
Jamestown, New York.

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices. Order of him and save the freight.

FOR QUEENS From Best Italian Stock
$1.00, Select $1.25.
Address J. B. CASE, Port Orange, Fla.

The Best Honey Queens on Record

Are those reared by The BEE & HONEY CO., Will Atchley, Manager. We breed six distinct races in their purity, from 6 to 35 miles apart, queens ready to go now. We make a specialty of one, two and three-frame nuclei and queens in large lots. Write for prices, they will astonish you. We guarantee safe arrival and perfect satisfaction. Address all orders to

The Bee & Honey Co., (Bee Co., Box 79.) **Beeville, Tex.**

DON'T WAIT any LONGER to Buy. **Bee Supplies** BIG DISCOUNTS for Orders Now.

Write to us to day and say what you want and get our prices. New Catalog will soon be out. It is free. We also handle
HOOSIER INCUBATORS AND BROODERS.

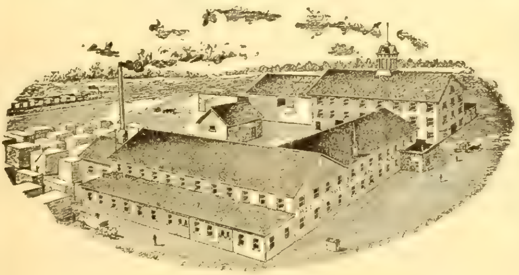
C. M. Scott & Company,
Dept. G. 1004 E. Wash Street, INDIANAPOLIS, IND.

Ho! Bee-Keepers! Attention!

The Hyde Bee Company (Inc.), capital stock $30,000 with the best strains to be had, and nearly 1500 colonies of bees, are again offering bees and queens for market. We are Texas's largest apiarists and for years have been breeding up our stock to the highest point of excellence. We make a specialty of Hyde's Imperial Golden Italians, and Hyde's Non-swarming, long-tonge 3-band Italians. Unt. queens, either race, until June 1st, $1.00; six for $5.00; twelve for $9.00. Select warranted 25c, and tested 50 cents additional. Select tested, $2.00. breeders 3-band, $3.00; goldens, $5.00. Orders received until March 1st at 10 per cent less than above prices; after June 1st, 25 per cent discount from above prices. Circulars free, postal gets it.

Texas Bee-Keepers. We are headquarters for the best and cheapest honey cans, and solicit your trade. We are in the market for Comb and Extracted Honey. Let us make an offer on your crop when ready. Don't forget to give us a show when you go to buy cans or sell honey. We are the largest honey dealers in the United States.

THE HYDE BEE COMPANY,
Successors to O. P. Hyde & Son. FLORESVILLE, TEXAS.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

3 per cent Discount during January.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

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Shugart & Ouren, Council Bluffs, Iowa.
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Squabs are raised in 1 month, bring *big prices.* Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into.* Send for our **Free Book,** "How to Make Money With Squabs" and learn this rich industry. Address
PLYMOUTH ROCK SQUAB CO.,
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one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.

Handsomely illustrated descriptive booklets. with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama, sent free. JOHN W. WHITE,
Seaboard Air Line Railway,
Portsmouth, Va.

Splendid Location for Bee-keepers.

BEE-KEEPERS, FARMERS, GARDNERS. ORCHARDISTS. I want you all to send for free catalog, WORLD'S FAIR edition describing the best hive ever made. Contains the principles of the J. A. Golden hive. My book, **THE QUEEN BEE,** tells why you should keep bees. It tells BEGINNERS IN BEE-KEEPING why they should and how they can begin right. Price, long as the present edition lasts, 25 cents, with supplement. First come first served.

T. K. MASSIE, Tophet, W. Va.

FOR SALE.—900 colonies of Italian, Carniolan, and hybrid bees. Will sell all, or one-half interest.
W. L. COGGSHALL,
Groton, N. Y.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—The address of all who are still in need of cartons. QUIRIN THE QUEEN BREEDER.
Bellevue, Ohio.

WANTED—To sell 200 colonies of black and hybrid bees in box and frame hives. Address
E. A. SIMMONS, Fort Deposit, Ala

WANTED—To send handsome calendar free to those in need of first class printing. Estimates free. 100 envelopes, note-heads, or statements, 40 c; 250, $1.00 postpaid. YOUNG BROTHERS, Printers,
Girard, Pa.

WANTED.—To sell 140 strong, healthy colonies of pure Italian and hybrid bees, in one-story 8-fr. L. hives. Wired combs built on foundation. Winter stores. Price $350. Also complete outfit cheap. No failures in 10 years. T. H. WAALE,
Sara, Clarke Co., Wash.

WANTED—Second-hand 10-frame Hoffman hives also fixtures, sundries, etc.
JOHN H. DIERKER, 4430 S. 10th St., St. Louis, Mo.

WANTED—To sell or exchange The Girard Adjustable and Self-locking Wagon-jack, or a local interest in making and selling the same.
G. F. ARCHIBALD, Patentee, Girard, Pa.

WANTED.—To sell apiarian outfit of 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot.
X Y Z, GLEANINGS.

WANTED.—To sell best type-writer for bee-keepers: practical, handy, low-priced. For exchange, Mann green-bone mill, good as new, cost $16.00. Want 8-frame L. or Dovetailed hives or extracting supers for same: extracting-combs from healthy apiary; double shotgun 16 gauge. HARRY LATHROP, Monroe, Wis.

WANTED—To sell 70 colonies of bees in 10 fr. Root hives, largely on Hoffman wired frames, with full sheets of foundation, strong; warranted until April, 1904. Price $3.50 per colony, cash or on time Will pay salary to right man willing to do other work I will furnish room in village or country for this or other apiaries. Locality is good and unoccupied: rich thickly settled country; home and near-by market; fixtures at half price. R. G. JORDAN,
Chenoa, Ill.

WANTED.—To sell my home, consisting of 8-roomed house, cistern, and running water; barn, 24x36 shop and honey-house,18x34,and 3 acres of land; together with my bees, underground bee-repository, queen business, and good will. My best breeding-queens go with the bees See pp. 295, 935, GLEANINGS for 1903 Will move about 20 rods on old Doolittle homestead and am willing to help the purchaser a month or so for the first year or two. Reason for selling, over worked. Price $2500.
G. M. DOOLITTLE, Borodino, N. Y.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line Advertisements intended for this department must not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange pair Morgan horses for honey, bees, or hives. ELIAS FOX,
Hillsboro, Wis.

WANTED—To exchange 8-frame hives, extractor. and uncapping can, for honey.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange modern firearms for incubators, bone-mills, and shell-mills. Address
216 Court St., Reading, Pa.

WANTED.—To exchange for a Barnes Saw, or any thing I can use in my apiary, a fly shuttle carpet-loom (Dean's), good as new: cost $60.00 when new; will take $25 00 cash. My bees and supply business take all my time, so I can not weave carpets any more
E. R. FOSMIRE, Cromwell, Iowa.

WANTED—To exchange Italian queens for incubators. Must be in good condition. Let me know what you have. J. F. MICHAEL,
Rt. No. 1, Winchester, Ind.

WANTED—To exchange one high-grade typewriter, one incubator, 200-egg capacity, encyclopaedia of 15 volumes, 200 volumes books, foundation, bee supplies, 100 colonies bees, etc. Send for list. Wanted—Honey, beeswax, Root-German wax-press, and real estate. F. H. McFARLAND,
Hyde Park, Vt.

Walter S. Pouder. Established 1889.

Bee=keepers' Supplies.

Distributor of Root's Goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Co., and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey=boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee Smokers, Bee=veils, Pouder Honey=jars,

.........and, in fact, everything used by Bee-keepers......

Headquarters in the West for the Danzenbaker Hive which is so rapidly gaining in popularity among our most successful comb-honey producers. Investigate its merits.

No order too small, and none too large. "Satisfaction guaranteed" goes with every shipment. A pleased customer is the best advertisement that my business has ever had. Remember that it is always a pleasure to respond promptly to any communication pertaining to the bee or honey industry.

Beeswax Wanted.==I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package.

Take Notice.==Finest Comb and Extracted Honey on hand at all times. I handle several carloads during a season, and if your local demand exceeds your supply I can furnish you promptly, and at prices that will justify you in handling it. If interested write for my special price list of honey.

My Illustrated Catalog is mailed free to every applicant. Address your communications to

WALTER S. POUDER,

513=515 Massachusetts Ave., = INDIANAPOLIS, IND.

SPECIAL NOTICE

Special Notices By Our Business Manager

PRICE ON SQUARE CANS WITHDRAWN.

The 1903 Annual Report of the National Bee-keepers' Association, p 53, gives prices of tin honey-packages. I am informed that those prices will not be granted any longer. N. E. FRANCE, Gen. Man.

NEW ADVERTISING RATES

We desire to call the attention of our advertisers and others interested to the new advertising rates found on page 6; also to the new rate of 15 cts. per line for Want and Exchange ads.

LAVA SOAP.

See our notice in this column, Dec. 1. The only soap that will remove propolis, so far as we know. Good also for machinists, printers or any class whose work soils the hands. Prices as follows: Per cake 10 cents; box of 12 cakes, $1 00 100 cakes in wooden box, $8.00. Postage, if wanted by mail, 8 cents extra.

PLEASE MENTION GLEANINGS.

It will be a great favor, not only to the publishers of GLEANINGS, but to our advertisers as well, if our readers will be sure to mention GLEANINGS IN BEE CULTURE when writing to the advertisers of this paper.

COMB AND EXTRACTED HONEY.

We have on hand a large stock of comb and extracted honey of pure quality. A full schedule of prices promptly sent on application. We can ship extracted in bulk or jars also from our Chicago branch.

CHESHIRE'S BEES AND BEE-KEEPING VOL. II. (PRACTICAL).

This book is now out of print, but we, fortunately, found a few copies on y which we can supply while the present stock lasts, at $3.25 each postpaid. Do not delay ordering if you want to obtain a copy of this great work.

THREE PER CENT DISCOUNT FOR JANUARY ORDERS.

The discount for January cash orders is 3 per cent. The orders received during the past few months, taking advantage of the early order discount, have been most gratifying, and indicate increasing confidence in the business of raising honey. Dealers, too, have been pouring in their orders for early shipment as well as advance payment for the same. Although we have been rushing things all the fall, and have shipped more than ten cars in excess of any previous year to the same date, still we have orders for more cars on our books unfilled than we ever had. If we did not get another order it would take us two months to fill what we have on hand now. But more are coming in, and we hope to reach them all in good time. While there has been some complaint because of increased prices, made necessary by increased cost of lumber, the great majority recognize the necessity and accept the situation. At any rate we can not complain of any hesitancy on the placing of orders We regret the necessity for advancing prices, as much as any one for it makes us lots of trouble to change prices, and we do so only when forced to it by changed conditions. The increase in business reaches every department, and is a compliment to the high standard of excellence we endeavor to reach.

ADVENTURES IN HIVELAND, BY FRANK STEVENS.

We have just received a copy of this book from the publishers in London, and quote as follows from their prospectus:

> This is a story of bee-life, told in such a form that it will appeal to children. Throughout the book the hive is viewed from the inside by two children, who are enabled to do so by the good services of an elf man.
>
> The whole history of the habits of these interesting insects, as here given, is absolutely accurate, and many facts with regard to bees which are not generally known are here told in so interesting and entertaining a way that the didactic nature of the book is ingeniously disguised. The author has devoted many years to the study of this branch of natural history, and presents the observations of his trained mind in a very clear form. Alike to old and young the book will undoubtedly afford entertainment and instruction.
>
> The illustrations are drawn from life, and great care has been taken that the pictures of the bees, the comb, the cells, and so on, be absolutely true to nature
>
> Although great stress is laid on the fact that this book is scientifically accurate, it should be clearly understood that it is entirely free from technical and other phrases which would not appeal to the juvenile mind, and that every detail is comprehensivel discussed in plain English.

We have given the book only a hurried examination, but think it very deserving of a place in the library of any bee-keeper or any one interested in bee-life. It will be found especially valuable, we believe, by teachers

Crown 8vo, gilt cloth, $1.25, postpaid; supplied by this office.

Special Notices by A. I. Root.

TEMPERANCE, PURITY, AND GODLINESS.

Our old friend A. T. Cook, of Hyde Park, N. Y., sends out a larger and nicer catalog of garden seeds, etc., and actuall takes space on its crowded pages to plead for temperance, purity, and godliness. It is refreshing to find a seed catalog that not only refuses to sell tobacco seed, but uses its valuable space to remonstrate with the boys on commencing to use tobacco. Brief exhortations for righteousness are scattered all through its pages.

PRUNING FRUIT-TREES, GRAPEVINES, ORNAMENTAL TREES, ETC.

One of the most valuable bulletins issued by the Department of Agriculture is Farmers' Bulletin 181, entitled "Pruning." It is a bulletin of 40 pages fully illustrated, and up to the times. Every one who has a farm, or even a dooryard, or some ornamental trees in front of his house should have this bulletin in order to know how to care for trees and vines intelligently. Just send a postal card to the Department of Agriculture, Washington, D C., and ask for Farmers' Bulletin No. 181

BARNS AND OUTBUILDINGS.

The above book we have sold for the last twenty years or more. Just now we have a new edition, clear up to date, containing over 400 pages and 375 illustrations. It goes so far in including every building that is likely to be found on the farm that we have a picture and description of a house-apiary and a farmer's greenhouse. In discussing the latter they make one very good point indeed In putting up any sort of building or structure on the farm it is well to consider that the present owner or future occupant may want to use the building for some other purpose; therefore, as far as possible make your out-building so it can be used for a variety of purposes It seems to me that every farmer who contemplates building even a pig-pen or a "chicken roost," if you will excuse the term, should have this book. It is worth all it costs to give to the children to let them look at the pictures; for while they are being amused they will gather sensible and practical ideas in regard to home life. It not only discusses buildings for large farms and people of considerable wealth, but it also tells how to make the cheapest kinds of structures out of any old rubbish that may be lying about. While the book is greatly enlarged over the former edition, the price is still only $1.00 postpaid

Just one thing more: The paper and print are both beautiful. Not only is it a valuable book for the farmer, but almost every home in city or village would be benefited by the things it contains.

MANUAL OF CORN CULTURE.

This is a book not so particularly adapted to the wants of so many people as the one above; but it ought to be of inestimable worth to every one who makes corn culture a part or all of his occupation. It is the work of an expert at the University of Illinois, but now in the Department of Agriculture at Washington. The book is illustrated on almost every page with beautiful pictures of corn and every thing connected with the corn crop. The great point of the book is to instruct the grower how to get the very best *seed* corn that the world can furnish. Price, postpaid, 50 cents. Both of the above books can be mailed from our office.

1884 1904

Twenty Years

Of experience in the manufacture of Hives and Supplies, and a little longer in Queen-rearing, with good facilities, will enable us to fill your orders with satisfaction and promptness. :: Let us send you our 64-page Catalog. . . .

J. M. JENKINS,

WETUMPKA, = = ALABAMA.

3 Per Cent Discount

During the Month of January

Send for our 1904 catalogue and price list. Our hives are perfect workmanship and material.

Take Advantage of Early Discounts

and send your orders in NOW. By so doing you SAVE MONEY AND SECURE PROMPT SHIPMENTS

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New London, Wisconsin, U. S. A.

Dittmer's Foundation

RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the **Cleanest and Purest,** and in all respects the best and most desirable. Send for samples. Working wax into foundation, for cash, a specialty.

Beeswax always wanted at **Highest Price.**

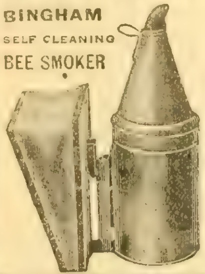
A Full Line of Supplies, Retail and Wholesale.

Send at once for catalog, with prices and discounts.

E. Grainger & Co., Toronto, Ont., sole agents for Canada.

GUS. DITTMER, Augusta, Wisconsin

ORIGINAL PATENT BINGHAM SMOKERS.



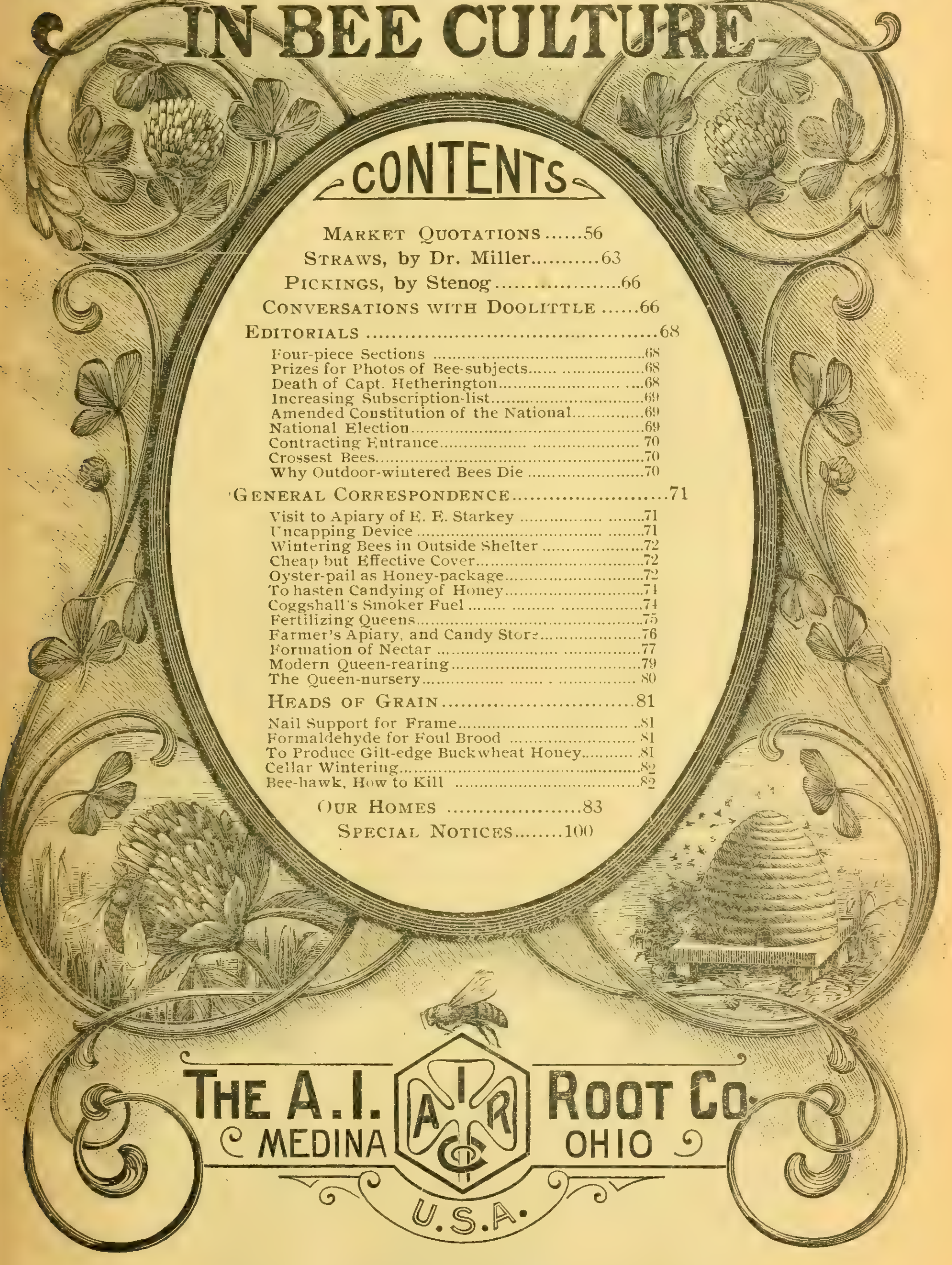
4-inch heavy tin Smoke Engine, 381 holes in steel fire-grate, postpaid	$1 50
3½-inch Doctor, 286 holes in grate	1 10
3-inch Conqueror, 220 holes in grate	1 00
2½-inch Large, 170 holes in grate	90
2-inch Wonder, 110 holes in grate	65
4-inch heavy Copper, 381 holes in grate	2 00

Twenty-five years the only patents granted, most improved, standard, and best in the world. *Never a complaint.* All have shields, bent cup, and coil-wire handles. Never go out, or throw sparks or soot. Bingham Smokers are not like other smokers. I would like to show you the many letters I have, but will summarize them below: "Don't see how they could be improved;" "Best I ever used;" "Perfect satisfaction;" "Perfection itself." The latest unadvertised patent, dated 1903, sent by the inventor on receipt of 10c above regular prices of the 3 larger sizes of smokers.

T. F. BINGHAM, FARWELL, MICH.

Volume XXXII. JANUARY 15, 1904. Number 2

GLEANINGS IN BEE CULTURE



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MEDINA OHIO
U.S.A.

Eastern Edition.

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and Dadant & Son.

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and RETAIL

Several carloads continuously on hand. Send for our 40-page illustrated catalog.

Lewis C. & A. G. Woodman
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FOUR CARLOADS

NOW IN STORAGE
AWAITING YOUR ORDERS

Consisting of a full line of

STANDARD GOODS

Danzenbaker Hives, Root's Dov'd Hives, Root's Chaff Hives, Hilton Chaff Hives, Hilton T-Supers, Cowan Extractors, Corneil Smokers, The Doolittle Wax-extractors, and Alley Traps, etc., etc.

As well as Weed Foundation, Section Boxes, Section-presses, Enamel-cloth, Brushes, Honey-boards, Tin Rabbits, Taps for cutting-screw-holes, and Manum Swarm-catchers.

Write for descriptive matter regarding Hilton Chaff Hives and T-supers, with prices on the number you think of purchasing.

36-PAGE CATALOG FREE

GEO. F. HILTON, Fremont, Mich.

The Danzenbaker Hive

The Comb-honey Hive.

THREE POINTS OF EXCELLENCE:

Please send to my address Danenbaker's "FACTS ABOUT BEES," telling about the Danzenbaker hive.

Name ....

Address ....

Quality--You can produce better-looking honey.
Quantity--You can produce more of it.
Price--You can get more per pound for it.

The Danzy Book of "FACTS ABOUT BEES" tells all about it, and what successful bee-keepers say in favor of it. We want to send it to you.

Root's Good's sold in Michigan by
M. H. HUNT & SON.
Send for Catalog.

The Danz. Hive--Sold in Michigan by

M. H. HUNT & SON,
Bell Branch, - Mich.

Headquarters for

BEE-SUPPLIES.

Root's Goods at Root's Factory Prices.

Large, complete stock now ready; liberal discount on early orders; insure you prompt service and lowest freight rates. Give me your orders and you will save money. Catalog free----send for same.

SEEDS OF DIFFERENT HONEY-PLANTS.

Let me book your order for QUEENS (see catalog, page 29) as stock for early orders is limited. NUCLEI ready to supply, beginning June.

C. H. W. WEBER,

Office and Salesroom, 2146 and 2148 Central Ave.
Warehouse, Freeman and Central Aves.

CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3. Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

BUFFALO.—Since the first of the year there is no improvement in the demand for honey. The demand is very slow, and not much prospects of improvement. Fancy white comb, 13½@14; A No 1, white comb, 13@13½; No. 1, white comb, 12½@13; No. 2, 11@12 No. 3, 10@11; No. 1 dark, 11@12; No. 2 dark, 10@11. White extracted, 6½@7; dark, 5@6. Beeswax, 28@30.

W. C. TOWNSEND,
Jan. 9. 178 & 180 Perry St., Buffalo, N. Y.

CHICAGO.—The new year opens with a quiet trade in honey, retailers usually having a supply from the stock laid in to make a good show at the holiday time. Prices are without essential change in No. 1 to fancy comb, which brings about 13c, very little doing in off grades at from one to three cents less. Extracted white grades bring from 6c to 7c according to flavor and other qualities; ambers about 1c less; especially weak are those lacking in flavor and body. Beeswax steady at 28 to 30.

R. A BURNETT & Co.,
Jan. 9. 199 So. Water St., Chicago.

BOSTON.—There is but little new to note in our honey market. Stocks are ample, and prices as follows: Fancy white, 16; A No. 1, 15; No. 1, 14. Extracted, 6 to 8, according to quality.

BLAKE, SCOTT & LEE,
Jan. 11. Boston, Mass.

CINCINNATI.—The market on comb honey has weakened, as the supply has been larger than the demand. Fancy water-white at 14c; off grades, lower. Extracted, amber, in barrels, 5¼@5¾ cts.; in 60-lb. cans, ½c more; alfalfa, water-white, 6@6½; fancy white-clover, 7@8. Beeswax, good demand, 30c for nice.

C. H. W. WEBER.
Jan. 9. 2146 Central Ave., Cincinnati, Ohio.

COLUMBUS.—Prices are somewhat easier, but the demand is improving somewhat. Market is ranging from 12 @ 15 on No. 1 and fancy white, amber, 11 @ 12; buckwheat, 9@10. We are in position to handle consignments on all grades.

EVANS & TURNER,
Jan. 7. Columbus, Ohio.

PHILADELPHIA.—Very little call for honey in the last ten days. Immediately following the holidays there is very little call for sweets, and trade is always dull the first part of January. There have been some arrivals with few sales. We quote fancy comb, 15@16; No. 1, 13@14; buckwheat, 12@13. Extracted, fancy, white, 7@8; amber, 6@7. Beeswax in great demand at 31. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Jan. 8. 10 Vine St., Philadelphia, Pa.

TOLEDO.—The market on honey is better than when we last wrote you and prices are the same Fancy white clover, comb, sells at 16; No. 1, ditto, 15; amber, 14. Extracted in barrels, 7; in cans, 7½. Beeswax, 28@30.

GRIGGS BROS.,
Jan. 8. Toledo, O.

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.

G. W. WILSON, R. R. No 1, Viola, Wis.

FOR SALE.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps.

EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

FOR SALE.—1000 lbs. No. 1 white comb, at 14c. and 2000 lbs. No. 1 extracted, at 7½c.

W. D. SOPER,
Route 3, Jackson, Mich.

FOR SALE.—5000 lbs. of fine comb and extracted honey, mostly all comb.

L. WERNER,
Box 387. Edwardsville, Ill.

FOR SALE.—Fancy basswood and white-clover honey; 60-lb. cans, 8c; 2 cans or more, 7½c; bbls., 7½c.

E. R. PAHL & Co., 294 Broadway, Milwaukee, Wis.

FOR SALE.—Fancy and A No. 1 comb honey from alfalfa, in Danzenbaker 4 x 5 sections. Write for prices.

WM. MORRIS, Route 1, Las Animas, Col.

WANTED—Comb and extracted honey. State price, kind, and quantity.

R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us.

EVANS & TURNER,
Columbus, Ohio.

WANTED.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.

THOS. C. STANLEY & SON,
Fairfield, Ill., or Manzanola, Colo.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & Co., Chicago, Ill.

FOR SALE.—5000 lbs. best pure clover honey, in barrels and 60 lb. cans, at 6¾c and 7 c per lb.; 6¾ c for the lot.

F. B. CAVANAGH, McBain, Mich.

FOR SALE.—1000 lbs. beeswax. Address

DR. GEORGE D. MITCHELL,
310 4th St., Ogden, Utah.

HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1904. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, $1.25; five for $5 00. Breeders of either race, $3.00 each.

W. H. Laws, Beeville, Texas.

Geo. J. Vande Vord

Queen-breeder. **Daytonia, Fla.**

Squab Book Free

Squabs are raised in 1 month, bring *big prices*. Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into*. Send for our **Free Book,** "How to Make Money With Squabs," and learn this rich industry. Address

PLYMOUTH ROCK SQUAB CO.,
19 Friend St., Boston, Mass.

If You Are Not a Subscriber

To the Bee keepers' Review, let me explain what it is trying to do. It is working hard to establish a

New Bee-Keeping.

It is encouraging bee-keepers to go beyond the managing of a single apiary. It is bringing to light and teaching methods that enable one or two men to manage several apiaries. It is securing as correspondents men who have done this and *made money* It is encouraging bee-keepers, after they have secured a crop, to make the most of it, to sell it to advantage—to adopt business methods—the same as is done in other lines of business.

To Illustrate:

Mr. E. D. Townsend, the most extensive bee-keeper in Michigan, managed an out apiary 50 miles from home, for two years, by visiting it only *four times a year*, and the profits of each visit were

One Hundred and Fifty Dollars.

Last year it was visited only *three* times. In the January Review Mr Townsend begins a series of articles in which he will describe his methods.

Last year Mr. F. E. Atwater, of Idaho, with only one helper,

Managed Eleven Apiaries,

scattered from seven to eighteen miles from home, and in the January Review he has a long article describing the hives, implements, and methods that enabled him to accomplish this feat.

Mr. M. A. Gill, of Colorado, last year, with the assistance of his wife and one other helper, managed 1100 colonies, increased them to 1600, and shipped

Two Carloads of Comb Honey.

Before the opening of the season, the Review will publish an article from Mr. Gill in which he tells exactly how he manages—particularly in regard to the swarming problem

After the crop of honey is off the hives, the battle is only half won, the

Selling is Equally Important.

The Review will probably do some of its best work the coming year in showing bee-keepers how to dispose of their crops to the best advantage. For instance, before the time comes for selling this year's crop of honey, the Review will publish an article from Mr H. C Ahlers, of Wisconsin, in which he will tell in detail how he has built up a trade in selling extracted honey direct to consumers, in which he last year

Sold Over 20,000 Pounds,

and most of it at *12 cents per pound!*

The foregoing are only a few of the good things in store for the readers of the Review—they are given simply as samples. The prospects for

Making Money in Bee-Keeping

were never brighter for the man who will rouse himself, wake up to the changed condition of things, and take advantage of the changes.

One thing is certain, if you are a bee-keeping specialist, if bee-keeping is your *business*, you can't afford *not* to

Read the Review.

It will lead you, and encourage you, and fill you with ideas, and tell you how to do things—show you how to enlarge your business and *make money*.

Just at present, and as long as they last (there are about fifty sets now left), I can make

A Special Offer

of sending the back numbers of the Review for 1903, free, to the man who sends $1.00 for 1904. In other words, you can get the Review for 1903 and 1904 for only $1.00 as long as the supply of back numbers holds out—and these back numbers contain a lot of useful information, in much the same line as has been outlined for the coming year.

W. Z. HUTCHINSON, Flint, Mich.

San Francisco, California

Season 1904. Root's Sections, Specialties, Sundries, Danzenbaker Hives, etc., in stock (here exclusively) Jan. 15 for prompt shipment, at prices lower than can be had by dealing direct. Send your orders to us. Also Dadant & Son's Foundation, best Dovetailed Hives on the market, 8 and 10 frame, regulation pattern and furniture. Special prices on quantity orders.

SMITHS' CASH STORE (Inc.)

25 Market St., San Francisco, California, U. S. A.

SWARTHMORE
Queen-Rearing Outfits

In successful use for over three years; highly recommended by the Roots Full explanation of cup-compressors, wooden cups, nurseries, cell-bars, fertilizing boxes, introducing-cages, with directions, free. **Queens** from six-band Italian stock, $1 each. E. L. PRATT,

The Swarthmore Apiaries, Swarthmore, Pa.

Folding Cartons.

Already printed at $4.00 per M, so long as our present stock lasts.

Our Queen Circular is now ready to mail.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SWEET-POTATO SEED

Sound, bright stock; most popular varieties. Send for descriptive price list. :-: :-:

L. H. Mahan, Box 143 Terre Haute, Ind.

4,000,000 PEACH-TREES

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases, and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address **J. C. HALE, Winchester, Tenn.**

STRAWBERRY PLANTS
and Seed Potatoes.

NEW
STRAWBERRIES

You can make more money if you plant intelligently. Write and tell us about your soil. We'll send you our FREE DESCRIPTIVE BOOK. over 100 varieties.

FLANSBURGH & PEIRSON,
Leslie, Mich.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

WANTED.—Assistant apiarist. State qualifications and wages. W. HICKOX, Berthoud, Colo.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dep't.
J. T. CALVERT, Bus. Mgr.
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F. J. ROOT, Eastern Advertising Representative,
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Terms: $1.00 per annum ; two years, $1.50 ; three years, $2.00 ; five years, $3.00, *in advance*. The terms apply to the United States, Canada, and Mexico. To all other countries, 48 cents per year for postage.

Discontinuances: The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once ; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering

ADVERTISING RATES.

Column width, 2⅜ inches. Column length, 8 inches. Columns to page, 2. Forms close 12th and 27th.

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3 pages	100 00
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Reading Notices, 50 per cent additional.
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Circulation Average for 1903, 18,666.

The National Bee-Keepers' Association.

Objects of The Association:

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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CONVENTION NOTICES.

The Michigan State Bee-keepers' Association will hold its annual convention, Thursday and Friday, Feb. 25 and 26, at the Agricultural College. The Michigan State Dairymen's convention will meet at the same place, Tuesday, Wednesday, and Thursday, and the round-up institute of the farmers' institutes will be held at the same place from Feb 23 to 26. One session of the dairymen's convention will be a joint session with the institute, and one session of the bee-keepers' convention will be a joint session with the institute. There will be half fare on all Michigan railroads. Dinner and supper can be secured at the College; but visitors will have to go to Lansing for breakfast and lodging. There is an electric line that takes passengers from the College to Lansing for five cents.

W. Z. HUTCHINSON.

Our Advertisers and Advertising.

If you are in need of help for your apiary, or want a situation, or to dispose of a lot of second-hand fixtures, or want to buy same, try an ad. in our want column. See page 98 for rates. This is what one who has used it says:

Gentlemen:—Last season I advertised for help in . . . . and GLEANINGS. Results were, ... , one reply; . . . , 3; GLEANINGS, 17. So here we are again. I enclose $1.00 for the want below in your Want Column, as many times as this pays the bill.

Yours resp'y,
Berthoud, Colo., Jan. 11, 1904. W. HICKOX.

Have you a farm, apiary, or other property for sale? Try our For Sale column. See page 98 20,000 copies of GLEANINGS each issue will carry your adv. all over the United States.

Chas. Israel & Brothers
486-490 Canal St., New York.
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

EDUCATED TREES
BRED FOR BEARING
TRUE TO NAME because all our Buds are cut from our own "Fruit Belt" Bearing Trees. **Illustrated Catalog free.**
WEST MICHIGAN NURSERIES,
Box 63, BENTON HARBOR, MICH.

LAKE MICHIGAN
BENTON HARBOR

The Fruit Grower, published at St. Joseph, Mo., will be sent 1 year if you send 25c and names of 10 farmers who grow fruit. "The Fruit-Grower is the best fruit paper we have, East or West."—Prof. Price, Dean Ohio Agl. College. Illustrated. Regular price 50c a year. For sample address
FRUIT-GROWER CO.,
314 S. 7th St., St. Joseph, Mo.

Cuba.

If you are interested in Cuba and want the truth about it, subscribe for the

HAVANA POST,

the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

I. J. Stringham, New York,

keeps in stock several car-loads of Apiarian Supplies of the latest patterns, and would be pleased to mail you his 1904 catalog. Bees in season.

Apiaries, Glen Cove, L. I. Sales Rooms, 105 Park Pl., New York.

This space is reserved for

JOHN M. DAVIS, The Tennessee Queen-breeder.

QUEENS! ATTENTION! QUEENS!

During 1904 we will raise and offer you our best queens. Untested, $1.00 each. $5.00 for 6; $9.00 for 12 Tested queens, $1.50 each; best breeders, $5 00 each. One two, and three frame nuclei a specialty Full colonies, and bees by the car-load. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians Carniolans, Cyprians, and Holy-Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18 Beeville, Tex.**

GLEANINGS IN BEE CULTURE

AND

The AMERICAN BEE JOURNAL

(If you are not now a subscriber to the American Bee Journal.)

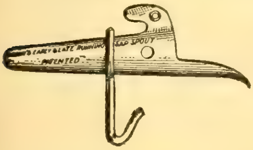
BOTH ONE YEAR FOR ONLY $1.60.

WE HAVE made arrangements with the publishers of The American Bee Journal (issued weekly), so that we can furnish that magazine with Gleanings in Bee Culture—both **one year for but $1.60;** provided you are not now a subscriber to The American Bee Journal.

This is a magnificent offer, and should be taken advantage of by all of our readers who are not now getting The American Bee Journal regularly. These papers, although on the same subject, are conducted so differently, and contain such a variety of reading matter, that every bee-keeper should have them both. And they can be had for a whole year for $1.60. Address all orders to

The A. I. ROOT COMPANY,

MEDINA, OHIO.



ANOTHER GREAT VICTORY for Grimm sap-spouts and sugar-utensils. First prize in the Vermont Maple-Sugar Makers' Association at Burlington, Vt., Jan 5, 1901. :: :: :: :: :: :: :: :: :: :: :: ::

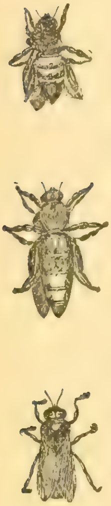
C. J. Bell, George H. Soule, P. B. B. Northrop, and W. G. Otis own the largest maple groves in Vermont, and have equipped their entire bush with Grimm spouts. You run no risk. They tried it and other makes last season. One-fourth more sap is guaranteed without injury to your trees. Samples and system for tapping FREE. **G. H. GRIMM, RUTLAND, VT.**

Fruit-growers read the best fruit-paper. SEND TEN CENTS and the names and addresses of ten good fruit growers to **SOUTHERN FRUIT GROWER,** Chattanooga, for six months' trial subscription. Regular price 50 cents. Best authority on fruit-growing. Sample free if you mention this paper.

Over 15 Months 68 Copies for only $1.

To a New Subscriber to the **WEEKLY AMERICAN BEE JOURNAL.**

To *new* subscribers for 1904 (at $1.00) we will send all the numbers of the Bee Journal (so long as they last,) **if requested**, containing the



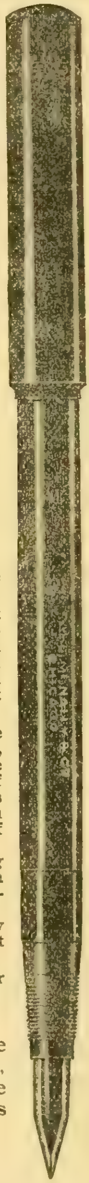
The cut is the full size of the Knife. Your Name and Address on one side, and these three Bees on the other side.

Los Angeles Convention Report of the——
——National Bee-Keepers' Association.

This will be over a quarter of a year's numbers **FREE**, or 68 copies in all, for only a dollar. Now is the time to subscribe.

See the December numbers of Gleanings for what the Weekly American Bee Journal contains.

A Solid Gold Fountain Pen.



The cut shows the full size of the Pen.

Finally, we have found a good Fountain Pen that is reasonable in price, The manufacturers of this Pen say that if you pay more than $1.25 for other fountain pens, it's for the name.

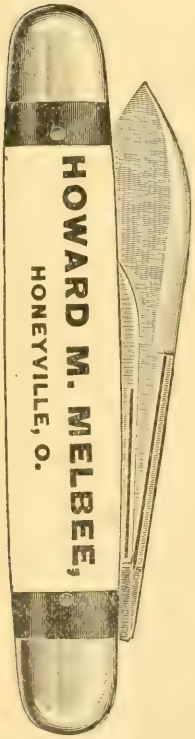
This Pen is absolutely guaranteed to work perfectly, and give satisfaction. The Gold Nibs are 14 kt., pointed with selected Iridium. The Holders are pure Para Rubber, handsomely finished. The simple feeder gives a uniform flow of ink. Each pen is packed in a neat box, with directions and Filler.

How To Get This Fountain Pen.

We send it postpaid for $1.25, by return mail, or with the Weekly American Bee Journal a whole year, for $2.00.

This Fountain Pen would be a splendid gift to a friend or relative. Why not order both Pen and Journal for some bee-keeper as a present?

The Novelty Pocket-Knife.



Your Name on the Knife.—When ordering, be sure to say just what name and address you wish put on the Knife.

The Novelty Knife is indeed a novelty. The novelty lies in the handle. It is made beautifully of indestructible culluloid, which is as transparent as glass. Underneath the celluloid, on one side of the handle, is placed the name and residence of any one desired, and on the other side pictures of a Queen, Drone and Worker, as shown here.

The Material entering into this celebrated knife is of the very best quality; the blades are hand-forged out of the very finest English razor-steel, and we warrant every blade. The bolsters are made of German silver, and will never rust or corrode. The rivets are hardened German silver wire; the linings are plate brass; the back springs of Sheffield spring steel, and the finish of the handle as described above. It will last a life-time, with proper usage.

Why Own the Novelty Knife? In case a good knife is lost, the chances are the owner will never recover it; but if the "Novelty" is lost, having name and address of owner, the finder will return it; otherwise to try to destroy the name and address, would destroy the knife. If traveling, and you meet with a serious accident, and are so fortunate as to have one of the "Novelties," your POCKET KNIFE will serve as an identifier: and in case of death, your relatives will at once be notified of the accident.

How appropriate this knife is for a present! What more lasting memento could a mother give to a son, a wife to a husband, a sister to a brother, or a lady to a gentleman, the knife having the name of the recipient on one side?

The accompanying cut gives a faint idea, but cannot fully convey an exact representation of this beautiful knife, as the "Novelty" must be seen to be appreciated.

How to Get this Valuable Knife.—We send it postpaid for $1.25, or with the Weekly American Bee Journal for one year, both for $2.00.

Please allow about two weeks for your Knife order to be filled.

☞ To those new subscribers who take either the Knife or Pen with the Weekly American Bee Journal (at $2 00), we will also send the back numbers beginning with the National Convention Report, as stated above, so long as they last.

Sample Copy of Bee Journal free for the asking.

Send all orders to **GEORGE W. YORK & CO.,**
144 & 146 E. Erie St., CHICAGO, ILL.

WE OUTGREW OUR OLD QUARTERS!

The growing demands of a RAPIDLY INCREASING BUSINESS have moved us. We are now located at

51 WALNUT STREET.

We have increased facilities, and a new, well-supplied up-to-date stock. Every thing that bee-keepers need and demand. **The Best Bee Supplies in America.** Special discount for early orders Send for catalog. Queen bees and nuclei in season.

THE FRED W. MUTH CO., 51 Walnut St., Cincinnati, O.

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 88 cts each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

Try Case Strain.

They make the whitest comb honey: have proved best for extracted especially in Cuba; are but little inclined to swarm Queens are carefully bred by experts Two firms have bought 900 each for their own yards. Our reputation is second to none. We mean to keep it up. We are planning better queens, earlier and more of them, for 1904.

Circular for the asking. **J. B. CASE, Port Orange, Florida.**

Bees and Queens.

A full line of Bee-Keepers' Supplies always on hand, including Root's hives, sections, and Weed Process Foundation. Bees and Queens in their Season. Catalog free.

W. W. CARY & SON, Lyonsville, Mass.

Our New Catalog is Now Ready.

Sixty-eight Pages

Illustrating, describing, and listing all of the standard, finest, and up-to-date articles used by

Bee-Keepers.

SEND FOR A COPY AT ONCE.

Discount for Early Orders!

Three Per Cent During January.

Lewis' One-piece Highly Polished Sections are Perfect. Fifteen Million Sold Last Year.

All parts of our hives are made to fit accurately; perfect workmanship and finest material. No trouble to set them up; our customers say it is a pleasure. We are not selling goods on **Name Only**, but on their quality.

Twenty Thousand additional square feet of floor space just added to our plant. We have over 45,000 square feet of floor space. We certainly can take care of your orders promptly—Remember that.

Two New Features.

Our Acme Hive, the shallow-body style, simple and cheap. **Our New Wisconsin Hive,** front portico, and the same inside arrangement as the regular Dovetailed.

One of Many.

New Haven, Ia., June 27, 1903.

G. B. LEWIS CO., Watertown, Wis.

GENTLEMEN:—I must say something in regard to the goods you have sent me. They are very good, and I received them in fine condition, and consider same cheap. Some people make their own hives, but I think this is a foolish plan when you can get goods like these, well made, neatly finished, and in such perfect condition. I have used 1000 sections and find every thing all right. If anybody wants to know where to send for the best bee-supplies tell him to write to me. BENNIE DIEDERICH.

Complete List of Agencies Will Be Found in Catalog.

G. B. Lewis Company,

Manufacturers Bee-Keepers' Supplies,

Watertown, Wis., - U. S. A.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.
$1.00 per Year Medina, Ohio

Vol. XXXII. JAN. 15, 1904. No. 2

Stray Straws

By Dr. C. C. Miller.

HARRY LATHROP says, p. 21, "Farmers as a class will not buy honey." Isn't that a matter of "locality," Harry?

MURRAY'S tag-and-block are all right, p. 31; but the more important question is what to have durable with plain figures, at not more than one or two cents a tag.

WHY IS IT that in Cuba the honey harvest is in winter instead of summer? [Say, you did not label this as a joke. As I am in the dark as to whether it is or not, I will let you answer it.—ED.]

APIS MELLIFICA is given in the Standard dictionary as a variant of mellifera, and is *as yet* in more common use, although it may go out of use if, as I think, Prof. Cook is following a higher authority in using mellifera. Will Prof. Cook please tell us how that is?

W. W. BROCKUNIER, p. 30, found three clipped queens on the ground with a ball of bees, and a fourth one with the swarm on the ground. About what I would expect with my bees if they could not easily get back into the hive, and were left long enough.

IT MIGHT BE just as well to tell the beginner that the artist has taken liberties with that gob of jelly in the jelly-spoon, p. 19, and swelled it up quite a bit. [Yes, you are right. It is not always possible for an artist to catch on to all the fine points in bee-work.—ED.]

A REQUEST is made at the close of p. 30 for me to read the preceding item. I'm glad of that as a text to say a few words, especially to beginners. There is no need to make any such request, for I never dare to leave any thing in a bee-journal unread. If I should skip a single item, even if written by the greenest recruit, I might skip something I do not already know.

ALLOW me to say to C. J. Pearse, p. 31, that, after some experience with horses, cows, sheep, and pigs in a bee-yard, I have had most trouble with sheep pushing hives off their stands. Hives are too low for horses or cows to rub against, and sheep are probably greater rubbers than pigs.

A. R. HARRINGTON, replying to your question, p. 30, that the editor missed, I think you will find that bees start out earlier in the morning in the sun than in the shade, and fly later in the evening in the sun than in the shade. I've noticed it in bees hauled home and placed north of the shop.

FORMALIN, or formaldehyde, raised fond hopes as to curing foul brood with drugs. Reports of failure have made those hopes grow dim. A report from Prof. F. C. Harrison makes them brighten again. He says in *Canadian Bee Journal* that he *knows* that spores of *B. alvei* have been destroyed in cells filled with honey; and he thinks the failures may be due to too little strength of the drug, too open boxes, or too short time.

"BETTER than honey for less money" is the claim made for certain corn syrup, so fine that, when "placed where the bee may have access to it, he forsakes the roses and the clover," as *he* finds the manufactured article more to *his* taste. Editor York calls it "he-bee molasses." He ought to be prosecuted for libeling the bee and the molasses. I invested 10 cents in the stuff, and one taste was enough. That persistently lingering after-taste said in capitals, "GLUCOSE." Too bad that there's no way of stopping people from lying in advertisements.

MR. EDITOR, on p. 18 you have missed the man who had the largest take of all the members of the National; likely because his take is divided into two columns. M. H. Mendleson took 112,000 pounds of honey, 22,000 of it comb. If 1 pound of comb be equivalent to 1½ of extracted, then his crop, in terms of extracted honey, was 123,000 pounds. Neither he nor Mercer seemed a bit stuck up over their "fat takes," but talked just as common and pleasant to me as if I'd taken 100,000 pounds of honey and a wagonload of wax. [I am glad you have called my attention to this omission. Mendleson is a modest fellow, and he ought to get the credit for his enormous yield during the past year. We shall, therefore, have to give him the palm for producing the largest crop of honey for 1903 of any bee-keeper in the United States.—ED.]

PLEASE GIVE US semi-monthly reports of cellar-wintering at Medina. Cellaring under a machine-shop comes within the scope of very few; a large number who have but a few colonies can have the advantage of a roomy cellar as at the Harrington yard; while a smaller number, but with more intense interest, will want to know all about the basswood-yard cellar. How much and what attention do the bees need in that cellar? What is the temperature? [I will endeavor to comply with your request; but let me say right here that Bingham's ideas on the construction of cellars with ventilators 16 inches square I believe are all right. Bingham has always been intensely practical, and he has made no mistake on this question of bee-cellars and their ventilation.—ED.]

A. I. ROOT says, p. 36, that, after I've told my wife I love her, I might add that I love her *still*. I do love her still, but not too still. A woman that keeps up her clatter all the time is very tiresome; but a woman so glum that she never speaks is worse yet. My wife is just about right. [You are right, doctor. Somehow, when I visit your home I always *feel* at home. There is something about the manner of that good wife of yours, and of your sister, that makes me feel as if there were no place in this country, outside of Medina, that is a home to me so much as is that residence on the top of the hill a mile or so out of Marengo. I visit it only once or twice in two or three years; but when I do I laugh and grow fat, and gain a new lease of life.—ED.]

F. GREINER thinks of using dummies under sections in spite of the fact that bees will not work so well over dummies, p. 25. Try having the dummies in or near the center, friend Greiner. One year, for another purpose, I put a dummy between each two brood-frames during the harvest, and the bees seemed to work the same as if no dummies had been there. [Say, doctor, do you realize that you are giving us a really valuable kink? This point is worth passing around. It is a well-known fact that bees will push along the work in the center of the super faster than on the two outsides. Now, then, if we put the dummy in the center of the brood-nest, we establish a very nice balance throughout the entire super. Why wouldn't this be a good thing to do in the case of any colony whose brood-nest is not clear up to the average? There are many colonies in every bee-yard of this kind. If they have empty combs to fill up the space they can not reasonably occupy with brood, then they will fill them up with honey. When they do this it is a hard job to force them up into the supers. Now, then, if we had, instead of these combs of honey, a dummy in the center of the brood-nest, and nothing but brood in the combs, we would force the honey, when it did come in, up into the supers. I believe I will paste this in my hat to use next summer.—ED.]

"NEITHER of us intimated that the old flat cover was perfect," quoth ye editor, p. 12. Oh, no! you merely said there was "nothing better," and Hutch said it was "all right." You say, "I never saw *any* cover of *any* construction that would not warp, twist, or check, somewhat." Now, Mr. Editor, please stand up in a straight row and answer a few questions:

1. Did you see those 50 hive-covers I had made with a dead-air space, and covered with tin?
2. I think you saw some of them after they had been in use a few years: did you see any that were warped?
3. Did you see any that were twisted?
4. Did you see any that were checked?

Quite possibly you may answer to the last three questions that you did not notice. In that case let me ask you:

5. Do you think it reasonable to suppose that they would warp, twist, or check? I may be allowed to depose that, if there has been any warping, twisting, or checking, I have not noticed it. [I can hardly answer your questions by yes or no. The most I can do is to qualify a general answer. Yes, I saw some double hive covers at Marengo —how many, I do not know. I can not remember distinctly, but I think some of them were warped, and checked too, but only slightly. Yes, I should suppose that they might warp some, and a great deal in some localities. On my eastern trip recently I think it was Arthur C. Miller who said the Dr. Miller covers twisted badly; so this question of covers is somewhat dependent upon locality.—ED.]

YOU say, "a *single* board is now out of the question for most localities because of its cost." From a manufacturer's standpoint, possibly; from a bee-keeper's standpoint, most emphatically no. I can afford — so can any bee-keeper — to pay a dollar for a good hive-cover rather than to go without a cover at all. But I know that I can have a good cover without paying a dollar or the half of it.

Besides the 50 tin-covered covers, I have 50 covered with zinc, and I think they are better, although I have not tried them so long. I have also about 400 plain-board covers that have been in use many years, and most of them are of single boards. I give it as my deliberate conviction that, if stuff for single-board covers could be bought at $25 a thousand feet, it would be better for me to pay 25, 30, or even 40 cents for the zinc covers, which, aside from freedom from twisting and warping, have the advantage over the plain-board covers that they are cooler in summer and warmer in winter.

This is a matter of very great importance, Mr. Editor, and I hope you'll freely speak your mind. [I think you will find the zinc much more serviceable than the tin. As I have before stated, the old iron used in tin roofing has been displaced by steel. If you will look at your old spoutings and iron roofings you will see that many of them are still good while the more modern tin roofings and spoutings made of steel are comparatively short-lived. I would put zinc-covered roofs first; galvanized sheet steel next (galvanized iron has disappeared from the market); good roofing paper next, and ordinary steel tinplate last.—Ed.]

"I think I am safe in saying it is away beyond your general average, season after season." That's what you say, Mr. Editor, at the close of my report, p. 13, and I thank you for saying it, as also for your remarks in general about reports. I've had years of entire failure, and more that were nearly failures, and I never yet had any thing that would come anywhere near last year. I've also been saying that I never expect another season like the last, but I'm weakening a little on that. Snow covered the ground the next day after the bees went into the cellar (Nov. 28), and the ground has been covered ever since, with good sleighing now, and it is entirely possible that snow may cover the ground all winter. Under that blanket of snow lies a denser carpet of white clover than there was a year ago, and there is a bare possibility that next season may be as phenomenal as the last. [That same blanket of snow covers a dense carpet of white clover over the whole of the clover regions of the North. As I write, Jan. 13, we are having a heavy snowstorm that is already covering the ground with a still thicker blanket of snow. The protection afforded, and the immense amount of moisture from the slow-melting snow as the warm weather opens up, will do a great amount of good. A heavy rain can not compare with it. Snow melts slowly, and herein lies its value as an irrigant. I believe with you, that, unless we should have some very warm weather in midwinter, followed by severe freezes without snow, we shall have a good clover crop next season. Generally speaking, if there is any thing that can make the heart of the bee-keeper rejoice it is to have heavy snows.—Ed.]

You say "there must be something 'rotten' in Marengo as well as in wicked Chicago" because my sections averaged 14¾ ounces each, instead of weighing "just an even full pound," p. 13. Haven't you got me mixed up with some one else, Mr. Editor? I'm not the man that ever hinted that sections "might, could, would, or should" be produced to weigh "just an even full pound." On the contrary, I've insisted in the most strenuous manner that the thing couldn't be done, again and again reporting the varying weights in my own experience, and saying that the fair thing was to sell by weight. The specially rotten thing in Chicago is the condition that allows the possibility of a producer getting less for a section weighing "just an even full pound" than for one with less honey in it and no better in any way. That 18,000 pounds of honey was sold for just what it weighed, and there's nothing rotten about that. [In proportion as you do not approve selling light-weight sections by the piece, in that same proportion you should disapprove of producing the naughty (?) ones that are used as a medium of cheating (?). It is just as easy to produce sections averaging 16 ounces as those that average 14¾ ounces. You would have to use a little thicker section—say 2 inches, just as are used to-day in England. As long as you and I and all the rest of us produce sections averaging a little over 14 ounces, so long will the trade, in order to simplify calculation and sales, run toward selling by the piece, and it is right. Doctor, I believe you are right in selling sections that weigh 14¾ ounces. You do no violation to the great body politic. It is no worse to buy or sell sections by the piece than to buy or sell eggs by the dozen, for some eggs are much larger than others.—Ed.]

A. I. Root, I want to say amen to that preachment of yours, p. 34. The man that robs his wife of her fair share of courting when her hair turns white is a sneak and a thief; and you might have added that he cheats himself as much as his wife. Let me tell a little story out of *The Ladies' Home Journal.*

> The young girl, Priscilla, was asking the good old Dutch lady: "Do you mean to tell me that, when you married Mr. Blom, you were not well enough acquainted to love him?"
>
> "Na! Ve vas na vell enoof acquainted for dhot."
>
> "You did not love your husband?" asked Priscilla, feeling that the old Dutch lady had suddenly gone very, very far away
>
> "Vell, you see it's dis vay," explained the old lady, and the look in her bright old eyes made Priscilla feel that she had indeed gone away from her, but in another direction: "Vhen you marry a man you dink you luff him. But vhen you been marriedt a month you find oudt you luff him so much more dhot you know you didn't know vhadt luff vas in de first place. Den, vhen you been marriedt a year alreadty, andt you pegin to call him Fahder, and he pegins to call you Muhder—vall, vall, vall, vall, vall! Maype you dond't luff him den, eh? But you dond't. De years dey go py, and dey go py, andt de troubles dey come, andt dey go too. Andt maype, vhen you been marriedt fifty year alreadty, den you kin say, honest andt true, 'I luff him,' for den you been puttin' up mid each odder long enoof to find oudt for sure."

That's a good bit the way it is at your house and mine, isn't it, old comrade?" [Dear old friend, your story is exactly to the point. Little did I dream, when I wrote the Home paper to which you refer, of the experience that was just before me. Before my talk was even in print, Mrs. Root was near unto death, and I was compelled to look ahead and see what life would be without her—she who had been my comrade and helper toward all that is good almost ever since the days of my boyhood. May God be praised that she is now, Jan. 13, though still very weak, on the road to recovery.—A. I. R.]

Pickings from Our Neighbor's Fields
By "Stenog."

Just as the old year finds its close,
  The honored soldier, patriot, man,
Lays down for aye the battered sword
  He drew when war began.
Cover him o'er with the flag he loved,
  And lay him away to his rest;
His conflicts are over, the victory gained,
  He's entered the land of the blest.

*

A French writer says that the ends of oak twigs, well dried, make a good smoker fuel. They produce a very pungent smoke, are easily gathered, and are of no other use.

*

A German writer has shown, to his own satisfaction at least, by examining the fecundating fluid of drones that only those drones that come from a fertile queen are of any value. He says if this is true there will be a good many theories to modify and practical applications to make.

*

BRITISH BEE JOURNAL.

The clipping of queens' wings is not very much practiced in England.

*

I am pleased to note that Mr. Thos. Wm. Cowan's "British Bee-keepers' Guide-book" has just been translated into Dutch, for the use of people in South Africa, lately conquered by the English. The publishers will please book our order for a copy.

*

EL COLMENERO ESPAÑOL.

Continuing his review of bee culture in different parts of the world, the editor, the late Mercader-Belloch, has this to say of Belgium:

> This small country, which all Europe beholds with admiration and respect for its important manufactories, for having the greatest number of railroad lines per square mile of any country in the world, and, finally, for being the only nation in the world that competes with England in every class of manufactures, and which has pushed public education to the height of perfection, has not overlooked bee culture. Hence it is that the government itself, as well as corporations and individuals lends great aid to the development of apicultural science by means of medals and other ways of stimulating effort; and this is the reason why, within a few years, Belgian apiculture has reached as high a point as in any other nation.

From the same source we learn that Switzerland is as far advanced in apiculture as any other nation. It has great bee-keepers who may truthfully be called professors. Mr. Ed. Bertrand, in Nyon, publishes the *Revue Internationale*, one of the best bee-journals in the world [now discontinued]. In Switzerland the old-fashioned skeps are no longer known, for everybody has been converted to modern methods.

*

England has a large number of apiaries on the movable system; has several bee-journals and various bee keepers' associations. In fact, she stands among the great powers of Europe in regard to bee-keeping progress.

*

EL APICULTOR.

The first number of this fine Spanish bee-journal has reached us, dated Jan. 1. It seems to be the result of a disagreement between the managers of *El Colmenero Espanol*, another Spanish bee-journal. The journal in question is well printed, pages the same size as this. It contains a large amount of original matter, and is a great credit to the projectors of it. I am sorry to read in it of the death of D. E. de Mercader-Belloch, proprietor of *El Colmenero Espanol*, from which I have made translations above. Mr. Mercader-Belloch was well known in Europe as a bee-keeper, and was president of the Spanish Apicultural Society. He died on the 9th of December, aged 73 years. These two papers are published in Barcelona, Spain, and, so far as I know, are the only Spanish bee-papers published.

Conversations with Doolittle

LONG HIVES VS. TIERING UP.

"Good evening, Mr. Doolittle. Fearfully cold to-night outside."

"Yes. I think this will be the coldest night of the winter, so far. I see the mercury was ten degrees below zero just before dark. I always feel quite comfortable on such nights as this, when I think of the bees all safely housed in the cellar with the temperature always at forty-five in there. Always seems as if those outdoors would suffer on such nights, but perhaps they do not."

"I had not thought of it in that light. My 87 colonies are all out on their summer stands, well packed, and I was congratulating myself on this fact."

"Well, they may come out as well in the spring; but from an experience of over a quarter of a century, with bees wintered both ways, the underground cellar gives an advantage of fully 10 per cent on number of colonies successfully wintered, over what chaff packing outside has done. But I mistrust that Mr. Jones did not come over to talk about wintering bees. What was on your mind to night?"

"I have been thinking of making some long hives for next summer, and came over to have a little talk with you about the matter. Why do not those working for extracted honey use a long hive, holding the same number of frames that they wish to use in one story, instead of tiering up several hives, one on top of the other, as is advised by the bee books and papers?"

"I do not know just why others do not use long hives; but my experience with them was not in their favor."

"That is contrary to what I expected. From what thought I had given the matter I was of the opinion that a long hive would be more convenient, and that less time would be consumed in the manipulation of it."

"This matter was gone over quite largely years ago, and it might serve your purpose if I told you something regarding it."

"That is right; I shall be glad to hear."

"Some twenty-five or thirty years ago Mr. D. L. Adair, of Kentucky, was quite a prominent bee-keeper and writer for our bee-papers. He used and advocated a long hive, to be used on the principle of spreading frames out horizontally, instead of tiering one hive above the other, claiming that, thereby, a colony of bees could be kept in a normal condition, and while in said condition no swarming would be the result. This he termed the 'Long-idea' hive."

"Wait just a moment Was he right in claiming that a colony which did not swarm was in a normal condition? I had always supposed that the colony which swarmed was in a normal condition. How else would bees, in a natural, condition keep from becoming extinct?"

"My idea would run along the same way yours does; for in all my trials to prevent swarming, which have been many, colonies have to be thrown out of a normal condition in order to obtain success, unless a very large hive, filled with comb, is given. Where as much as 5000 cubic inches of drawn comb are given to a colony in early spring, few swarms will be the result; and I judge that Mr. Adair was cognizant of this fact, and for this reason he concluded that any colony, having to the number of from twenty to twenty-five Langstroth frames full of comb, was far more likely not to swarm than to swarm. therefore the colony which did not swarm while in one of his long-idea hives was in a normal condition."

"Excuse my breaking in. Go on with your story."

"Being always ready to test all 'new ideas' I made two hives, each four feet long, putting colonies in them, by setting the frames over from other hives, early the next spring. One of these I worked for extracted, and the other for comb honey, on the Adair plan. The one worked for comb honey swarmed, soon after taking out one-third of the combs at either end of the hive, and substituting frames of sections, either because the 'idea' was faulty or because I did not know how to manage fully such a hive, or both; so after repeated trials to keep them at work in the four-foot hive I let them have their own way, and hived the swarm in a new hive after they had swarmed some five or six times."

"Just as I should have expected, after you took out two thirds of the combs, and put sections in their places. That is the way such a change always works with me, and I often wonder how others are still recommending such or a similar plan, of giving a top story of combs till the honey-flow arrives, and then substituting said story with a super of sections, claiming that the bees will at once go to work in them because they have been used to working 'upstairs.' Unless this super is supplied with sections containing drawn combs it always results in swarming with me What is your experience along this line?"

"The same as yours, unless something else is done by which the colony is thrown out of a normal condition. But we are wandering!"

"Yes, I see. Excuse me again. How about the colony worked for extracted honey?"

"That did splendidly, and did not swarm; but another, worked on the tiering-up plan, did nearly or quite as well; and by practical knowledge I learned that I could work a two, three, or four story hive much more easily than I could this long one."

"How was this? This part of easy working I thought was to be the best of all. If they are not as easily worked as the tiered-up hive, it shows that my opinion was faulty."

"To take the frames out of these long hives, the person's back must be bent just right, or enough to make it the hardest kind of work, unless the hives are set on stilts, which is not advisable; and the bees which are shaken off the combs will crawl all over the sides and top of the hive in such numbers as to make it almost impossible to close it again without taking much valuable time, or killing them by the score or hundred. With the two or three story hive, the bees shaken down at the entrance will not get up to the top story before you are through with your manipulation, and the operator can stand erect, or nearly so, while doing all the work."

"This is something that had not entered into my calculations, and I am quite surprised; but at the same time my reason tells me that you are right."

"But the worst thing about those hives was that I lost both colonies during the winter, and during every succeeding winter that I tried to winter bees in them. Of course, they were too unwieldy to carry into the cellar; but, so far as I could see, they were prepared for winter as well as any of the other hives which were left out, which came through the winter in very good condition."

"How many years did you use these hives?"

"I tried them for several years, putting colonies from other hives in them each spring, as often as those left in during winter died, but with no better success than at first; and finally, becoming disgusted with them, I tore them to pieces and made the lumber into other hives."

"Then you think I had better not try such hives, do you?"

"Not on a large scale at first, at least. It will do no harm to try two or three as I did, till you are convinced for yourself. But I will say this: for my locality, and when working for extracted honey, I know of nothing better than using any of the ordinary hives two, three, and four stories high, according to the populousness of the colonies being worked."

Editorial
By E.R. Root.

The *American Bee Journal* has reintroduced the Question-box department under a new name—"Some Expert Opinion." The question asked is, "Would you use separators? If so, what kind, and why?" The responses are nearly all in favor of separators of some kind. The majority favor wood as against tin. Quite a number who have tested the fence separator like it and claim that the sections are better filled out.

Our apologies are due to our subscribers for being late with our last issue—in fact, for several numbers back. The tremendous jump in our subscription-list has made it necessary for us to run our presses longer hours. In fact, we have been running all night to catch up. We are making plans for increasing our facilities, and hope ere long to get our journal out on time.

The *American Bee Journal* begins its 44th volume. It was founded by the lamented Samuel Wagner, and most ably edited by him for eight or ten years. When he died Langstroth assumed the management temporarily till it went into the hands of W. F. Clarke, who kept it for a couple of years when he sold out to Thos. G. Newman, who continued to be its publisher and editor up to the time the present proprietor took charge. With one exception the *Journal* has never failed to be on hand promptly, and that was during a strike last year in Chicago.

FOUR-PIECE SECTIONS.

It begins to appear that there are many friends of the four-piece section. It is argued that the extra time and cost of putting them together does not cut very much figure, because they can be put up by cheap help during the winter. The main argument in their favor seems to be that they will stay where they are put—that is, when pushed into a square position they will not try to assume the diamond shape.

PRIZES FOR PHOTOS OF BEE-SUBJECTS.

We particularly solicit fine photos showing any new idea or kink connected with the management of bees. For the best we will pay anywhere from $1.00 to $2.00, and even $5.00 for some of extraordinary merit. The picture must be sharp and clear, and, wherever possible, be printed in red or pink tones, as these are best adapted to half-tone work. We can use black platino prints when the contrasts are sharp and the pictures are not printed too dark nor too light. They must, in fact, be just right.

We also request our correspondents, wherever practicable, to send us a rude pencil-sketch, or a model of the thing described, by mail. Our artist, Mr. Murray, will be able to work the rough sketches into first-class drawings. If you can't make a drawing yourself get some boy or girl out of the public schools to do the work for you. If the article or idea is acceptable we will pay for the drawing. Get the sketches anyhow; for as a rule we pay more for illustrated matter.

DEATH OF CAPT. J. E. HETHERINGTON.

It is with much regret that we record the death of one of the most extensive bee-keepers the world has ever known—a man who for a period of over 20 years actually kept and maintained more than 3000 colonies of bees. His son writes as follows:

> *Mr. Root:*—My father, Captain Hetherington, died Dec. 31, after an illness of three weeks. He would have been 64 years old January 7.
> Cherry Valley, N. Y. H. B. Hetherington.

Since the above was in type the following has come to hand from P. H. Elwood:

> *Friend Root:*—The closing hours of 1903 bereft us of our beloved Capt. Hetherington. To his family and intimate friends the loss is immeasurable. Among bee-keepers the one has fallen who for more than a generation has stood at the head of progressive, practical bee-keeping in this country. P. H. Elwood.
> Starkville, N. Y., Jan. 9.

In our next issue we will have an extended biographical sketch of the captain, a man who has had a most remarkable career, both as an army officer, as a bee-keeper, and as an inventor. He was the first one to use super-springs, wired foundation, no-drip shipping-cases, the tall sections, etc., etc. The size he introduced was 3⅞×5, which is practically the same as the 4×5, which has begun to have such a large sale. He was a remarkable man in more ways than one, and the whole bee-keeping fraternity will much regret his death.

GLEANINGS FOR 1904; OUR INCREASING SUBSCRIPTION-LIST.

THE big boost we are getting in our subscription-list assures us that our efforts to give a good readable magazine are appreciated. Our subscription-list is now working toward the 17,000 mark. Just now we are printing 20,000 copies to take care of the demand for samples. So great has been the jump in our subscription-list that we have been compelled to advance our advertising rates in order to prevent our reading-columns from being swamped. As it is, we are putting in from 8 to 16 pages extra; and it now seems that GLEANINGS will have to be enlarged by at least 16 pages, making in all 52 pages, or 104 per month.

As in the past, we shall endeavor to give our readers matter carefully sifted, and easy to read. We believe in head-lines, lots of them, so that our friends can pick out just the information they desire most.

A strong feature of our journal for the coming year will be half-tone illustrations and zinc etchings. The average person can catch ideas at a glance through the medium of pictures, when he would not take the time to go through several columns of reading-matter that would require ten times the mental effort to get the same amount of information.

During the coming year there will be times when there will be less of illustrations and more Heads of Grain; and at other times there will be a preponderance of common articles. We sometimes get a surfeit of back matter for some particular department, and therefore give a larger proportion of some one department to equalize.

THE AMENDED CONSTITUTION OF THE NATIONAL.

ALL the amendments proposed by the committee at the Los Angeles convention, to the constitution of the National, have been carried. Two of the most important changes are as follows:

The General Manager, President, Vice-presidents, and Secretary, shall be elected by ballot in November of each year, by a *plurality* vote. The old constitution provided that the General Manager and Directors should be elected by a *majority* vote of all votes cast. Whenever there were several candidates for one office, it made it practically impossible to secure an election, because there would not be time to call for another vote within the limits prescribed. The constitution as now amended does away with this by making an election based on a plurality vote — in other words, the one receiving the highest number of votes will be elected. Formerly, too, the President, Vice-presidents, and Secretary, were elected at the regular annual meetings. As a natural result, they were the selection of a local and not of the entire membership.

Then there is another important change in the matter of new amendments. The constitution as amended provides that it may be amended by a majority vote of all the members voting, providing that such proposed amendments have been approved by a majority vote of the members present at the last annual meeting, and providing that copies of them shall have been mailed to each member at least 45 days before each annual election. If such a provision had been in force, in the old constitution some of the complications that have arisen in the past would have been avoided.

THE NATIONAL ELECTION; A TRAINLOAD OF HONEY 25 MILES LONG.

GENERAL MANAGER N. E. FRANCE, by a large majority, was re-elected; this was a foregone conclusion. For Directors, R. C. Aikin, and P. H. Elwood, were elected, and E. R. Root holds over. For the amendments there were 491 votes, and 10 against. By a provision of the old constitution, it was necessary to have a *majority* of all votes cast to declare an election. By another provision, the old officer hold over until his successor is elected and qualified.

A short time ago I announced to the public that I could not be a candidate for re-election, and would be compelled to resign if elected. The vote shows that W. McEvoy received 268 votes while I received 195. The number of votes necessary to declare an election was 277, which is just one more than half of all the votes cast. According to this, Mr. McEvoy lacked just 9 votes of being elected. The Chairman of the Board of Directors, therefore, declares that, no one having received a majority vote of all the members voting, E. R. Root will hold over as provided by the constitution under which this election was held.

In accordance with a previous declaration made by me, to the effect that I could not serve if elected again, I have sent in my resignation as a member of the Board, to the Executive Committee, of which J. U. Harris is chairman.

I regret very much the necessity of taking this step; but pressure of other work—and that means too many irons in the fire—as well as some private reasons, makes this course unavoidable; but in saying this I wish to state, as I have done before, that my relations with the officers of the National—in fact, with all of its members—have been very pleasant; but I believe I can work as well for the Association in the rank and file as I can among the officers. I expect, as before, to put the whole influence of GLEANINGS back of the Association, as far as I am able. I believe it is the best-managed organization, in the interests of the bee keeper, that exists in the world; and I am not sure but it has the largest membership. Certainly no other bee-keepers' society whatsoever exerts so wide and extended an influence as the National Bee-keepers' Association of the United States, and it has only just begun its splendid career. When one can secure all the benefits by joining through his local association, for the paltry sum of 50 cents, and fails to do so, well—er, yes — I feel sorry for him. Sorry for him that he won't join for his own sake, and sorry that he can't or doesn't see that the organization stands for the good of the bee-keeping interests in the *greatest bee country in the world*, a country that produces annually such an enormous output of honey that, if it were loaded on cars, it would make *a trainload 25 miles long.*

CONTRACTING THE ENTRANCE FOR OUT-DOOR-WINTERED BEES.

THOSE who winter out of doors would do well to have the entrances of all their colonies contracted down to very close quarters during zero weather—say ⅜×2 inches; but as soon as it warms up a little they should have almost the full width—say ⅜×8 inches. It should again be contracted at the approach of a cold snap.

Two years ago, for the purpose of experiment, we left some colonies with their entrances ⅞ by the whole width of the hive, and others ⅜×8 wide. The ones with the wide and deep entrances either died outright or came through in very weak condition, while those with narrow entrances came through in good order.

During the very coldest weather, the bees require but very little ventilation; and the smaller the entrance, up to a reasonable limit, the easier it will be for the bees to warm the cubic capacity. A large entrance is like an open door or window to a house — too much draft, too much cold air. It may take a little extra time to open and contract the entrances, but it will be time well spent. While opening up the entrances, be sure to rake out any dead bees that may have accumulated in the empty space.

In milder climates where the temperature does not go lower than 25° *above* zero except for a day or two the entrances will not need to be changed. Contract at the beginning of winter to an opening not larger than ⅜ ×6 inches, and leave it at that all winter.

THE CROSSEST BEES.

MR. O. M. BLANTON, in the *American Bee-keeper* for January, in writing on the subject of the best honey-gatherers, is satisfied that there is but very little difference in the various strains of bees. The Cyprians, he considers, are the most vicious; and then come the Holy Lands, the Italians crossed with blacks, and then Carniolans. The last he thinks very easy to control. He then adds: "I see no advantage in Cyprians at honey-gathering; and it is the height of folly to suffer such torture from them without any remuneration. The Cyprians whipped me out on several occasions while I was endeavoring to remove the surplus honey. Tobacco and even sulphur could scarcely control them when the smoke was comparatively cool." When we were furnishing the Cyprians it was our experience and that of our customers that they were by all odds the most vicious bees to handle. Smoke, on many occasions, seemed to have absolutely no effect on them. We were not surprised on removing the cover of a hive of them to have hundreds and hundreds of them dart out, and sting the moment they struck us. On one occasion I remember that one of our new bee men, not understanding them, and not having been cautioned, stirred up a mess, the like of which I hope never to see again. If one can imagine a swarm of bees, every one of which is bent on stinging, he can get some idea of what I saw in the yard that morning. It seemed as if nearly every bee had deserted the hive to attack the supposed enemy. I had no more than got into the yard than I had to beat a hasty retreat. We had to kill the queen finally.

It is fair to say that not all Cyprians were as cross as these; but even the gentlest of them were disagreeable to handle.

WHY OUTDOOR-WINTERED BEES DIE DURING LONG-CONTINUED COLD SNAPS.

WE have been having unusually cold weather, beginning about the middle of November, and letting up a little this morning, Jan. 8, when it is thawing a little. Much of the time the mercury has been playing very closely around zero, and a great deal of the time we have had high winds. These are trying times for outdoor-wintered bees, and why? During very cold weather the bees will draw up into a very small cluster, and they will remain in this bunch, closely compacted, as long as it continues to be very cold. If no warm spell comes on, giving them a chance to move over and seek a new spot from which they have eaten the honey all out, they will be liable to starve to death. After a very cold snap I have gone over some of our outdoor colonies, and found little bunches of bees dead. The honey had been eaten away from the cluster for perhaps two inches all around. They had contracted into a small bunch until the honey was out of reach. A few stray bees will always be found that have left the cluster in the effort to get food but chilled to death. It was too cold for the cluster to move, and hence it starved to death.

It has been stated that the cluster will move during cold weather; but I have never had the evidence of it; but I have seen the outside bees on the cluster stiff and cold, but still showing signs of life.

This warm spell that has just come on, even if it lasts for only a day, will give the bees a chance to get over to one side to get on the honey again, with the result that they are ready for another cold snap.

In very cold winters the indoor plan is certainly much to be preferred. In all climates, while the thermometer remains below the freezing-point during most of the winter the indoor method will be somewhat more economical of stores, and furnish stronger and healthier bees for the following spring.

GENERAL
CORRESPONDENCE.

A VISIT TO THE APIARY OF MR. E. E. STARKEY, EVANSTON, ILL.

Some Ideas which may Serve as Suggestions.

BY H. H. ROOT.

[Huber, or H. H., is the youngest member of The A. I. Root Co. While attending the Northwestern University, near Chicago, he visited Mr. Starkey. At that time he took several photos which are here reproduced.—ED.]

A few weeks ago I had the opportunity of looking over Mr. E. E. Starkey's yard. Some of his ideas interested me so much that I asked permission to illustrate them for GLEANINGS.

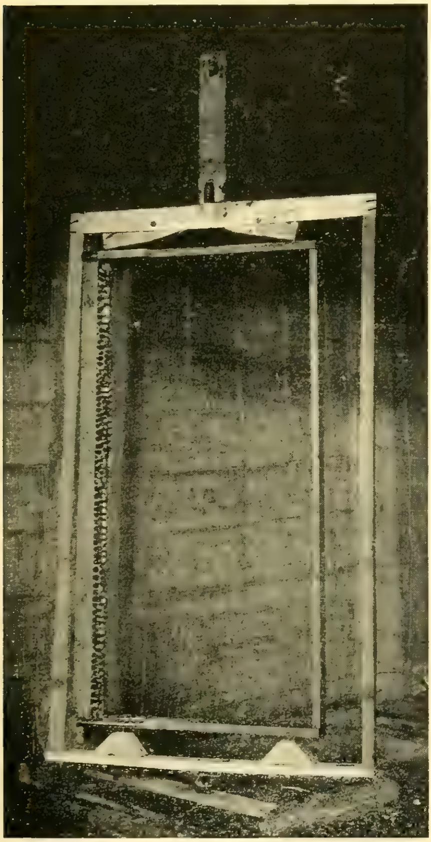


FIG. 1.—STARKEY'S UNCAPPING-FRAME HOLDER.

A HANDY DEVICE TO HOLD FRAMES WHILE UNCAPPING.

The first thing that caught my attention in his workshop was a sort of frame pivoted at the bottom, and hung by a spring from the ceiling (see Fig. 1). This proved to be a device for holding the frames while uncapping. A glance at the illustration will make the idea clear.

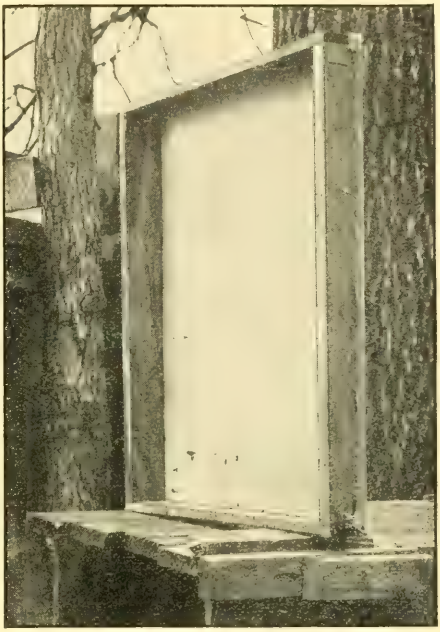


FIG. 2.—STARKEY'S CLOTH HIVE-COVER.

With one hand the upright stick or handle above the frame is grasped and pulled downward. This raises the two points on the ends of the pieces attached to the handle; and when the comb is placed in the holder upon the two lower points the tension of the spring from the ceiling above pulls up on the handle, thus lowering the two upper points and tightly clamping the comb. This seems like a complicated apparatus for so small an operation; but a trial would convince any one that it is a good idea. The material costs only a few cents, and the whole thing could be made in an hour's time. I myself tried placing a frame of comb in the holder, and it was just like handing it to some one to hold for me, for the iron points immediately clutched the frame and held it firmly. Then when I wished to take it out a slight pull on the handle released it. This device will, of course, turn round, allowing each side of the comb to be uncapped; and it will also tip down or back in order that the honey and cappings may drop away from the comb into the pan beneath.

A CHEAP BUT EFFECTIVE COVER.

On going outside the workshop I noticed that the hives had a rather peculiar cover. Upon examining one of them I found that it consisted of merely a frame upon which was tacked a piece of canvas (see Fig. 2). This canvas, after being stretched on the frame, is then dipped in a solution of beeswax and resin, making it perfectly watertight. It was so simple that my first thought was that it must be good for nothing; but after being told that over fifty had been in constant use, I changed my mind somewhat. In summer it is obvious that, with but one thickness of canvas to shield them from the sun, the bees would become too warm; therefore a small shade-board of thin wood is placed on top, and separated from the canvas by two cleats, thus making a ventilated cover. In winter Mr. Starkey packs his hives in such a way that the bees are kept warm.

While I would not recommend this cover as described, I think that it is a valuable suggestion. Just now, when the price of lumber is increasing so rapidly, why would it not be a good plan to make our hive-covers of the cheapest of wood in narrow pieces, and then add a thickness of canvas which may be dipped in some such preparation as will make it water-proof? In this way a cheap cover could be obtained which would neither warp, twist, nor leak. This method is already used with good success in Colorado; but the canvas is painted instead of being dipped in the beeswax and resin.

WINTERING BEES IN OUTSIDE SHELTER.

Although the form of packing bees for winter, as shown in Fig. 3, is old, yet I think it deserves mention. Fifty-six colonies are thus placed together, packed with leaves, and the whole covered with a cheap roof of tar-paper. Later in the year a load of hay will be spread around on top after a few boards have been arranged in such a way as to give ventilation.

In the foreground of Fig. 3 will be noticed a white tool-stand which holds every thing from smoker to tacks. On one end of this, as shown, are two projections which will hold two frames of bees. This is a very handy arrangement, for it does away with standing frames on the ground about the hives.

THE OYSTER-PAIL AS A HONEY-PACKAGE.

The idea about the yard which interested me most was Mr. Starkey's method of putting up his extracted honey; in fact, I was so much interested in it that I myself have been experimenting for several weeks with this same idea, which consists in putting up the honey in the ordinary oyster-pail. I am well aware of the fact that this has been tried before; but I do not believe it has been thoroughly tried in a community where people are looking for candied honey. The general plan is similar to that used by Mr. Aikin, the honey being poured into the paper packages and allowed to candy. Fig. 5 shows a crate of the honey in the oyster-pails, candied solid, and ready for market. After this stage has been reached, the cardboard can be cut down one side, and the whole peeled off, leaving a form as shown in Fig. 6. It seems to me that honey on a plate in this

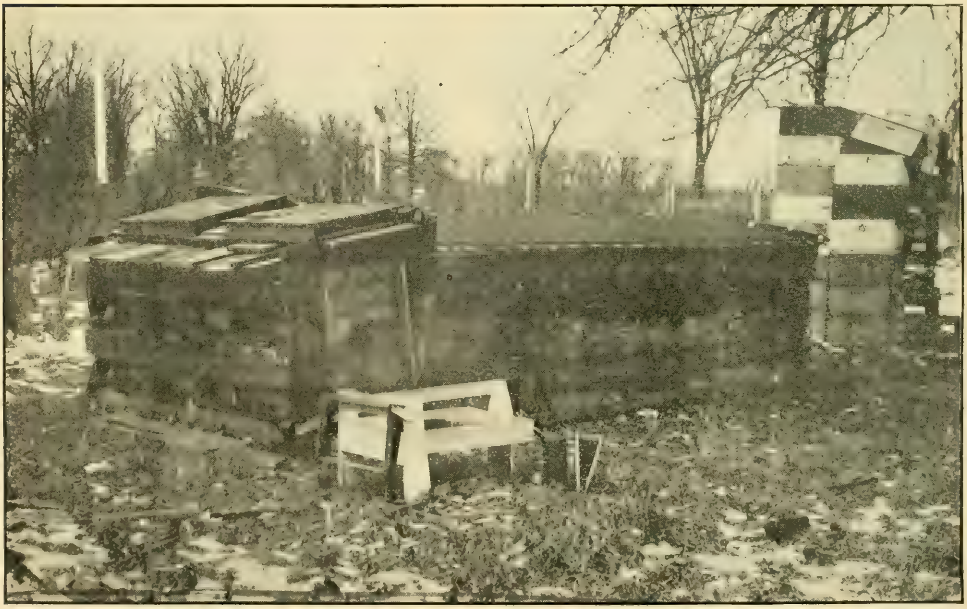


FIG. 3.—HIVES WINTER-PACKED UNDER SHEDS; TOOL-STAND AND SEAT IN THE FOREGROUND.

form is much more artistic and pleasing to the eye than the cylindrical form which comes from the Aikin honey-bag. A mere sight of a plate of this candied honey would insure a sale. It looks like a small mound of frozen cream.

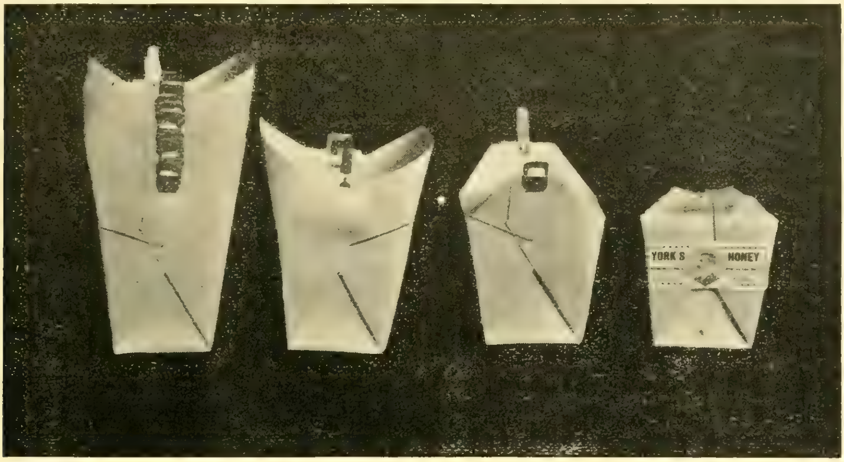


FIG. 4.—OYSTER-PAILS USED BY MR. STARKEY FOR PUTTING UP EXTRACTED HONEY.

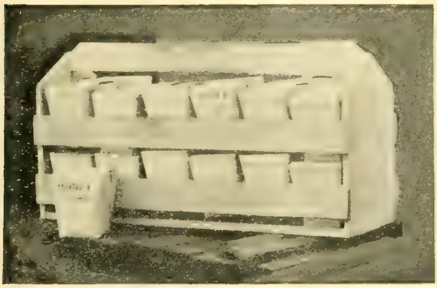


FIG. 5.—STARKEY'S CRATE OF OYSTER-PAILS FILLED WITH CANDIED HONEY.

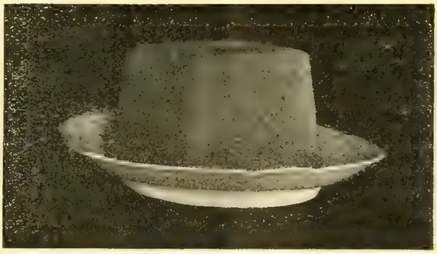


FIG. 6.—A PLATE OF CANDIED HONEY AS IT COMES FROM AN OYSTER-PAIL.

From my observations and experiments I have come to the conclusion that the oyster-pail possesses many advantages over the Aikin honey-bag, aside from general appearances. In the first place, they may be obtained at any grocery for about 75 cents a hundred; and since they need no paraffining whatever this first cost is the total cost. They come nested like berry-boxes, as shown in Fig. 4. All that is necessary to do in filling these packages is to separate them one by one from the pack, and pour in the honey. There is absolutely no trouble in performing this operation, as the packages do not have to be formed, but are simply set in a row ready for filling. After being filled they can be carried about by the handle, and moved with perfect safety. I have filled large numbers of these oyster-pails with thin warm honey, and I have yet to find one that leaked. It is impossible for them to leak unless they are tipped over. There were objections to the Aikin honey-bag because of the difficulty in handling after being filled with liquid honey; but in this form of package this objection is entirely overcome. To illustrate the strength of these packages, and to show how easily they may be handled, I might tell about a few experiments which I performed. After filling the pint size with one pound of honey, and folding down the top of the package, as shown in Fig. 4, I dropped it five times on a hard floor from a height of five feet. The fifth time a slight crack appeared at one corner. I made no effort to drop it squarely, for in some cases it tipped over entirely; but I picked it up before the honey could leak through the cracks in the cover. Then I threw it fifteen feet into the air, and caught it when it came down, without breaking it, or spilling the honey. I next tried the experiment of carrying a pound of honey with me when I went home. I had to run half a block to catch a car going at full speed, then walked half a mile and rode in a crowded train. During the whole trip I carried the pound of honey in my hand with no inconvenience whatever. Lastly, I shipped six packages of the liquid honey a distance of two hundred miles by express. They were placed in an ordinary basket with a little packing underneath and around the sides, and with a paper tied over the top. There being no caution marks to indicate the contents, the honey was subjected to all the ordinary rough handling by the expressmen. Each package stood the test in good condition.

These results have led me to think that the liquid honey might be sold in the oyster-pail as well as oysters.

HOW TO HASTEN THE CANDYING OF HONEY.

I have not yet satisfied myself as to what will hasten the crystallization or candying of honey. Although it is true that some kinds of honey candy much more readily than others, yet that which affects the candying of one kind of honey would also affect any other kind in the same way. It is clear that a very thin layer of honey will candy much more readily than the same amount in a thick layer, which fact would prove that the honey having the greatest amount of surface exposed to the air will candy first. Acting on this theory there are many who believe that stirring hastens candying because it introduces more air in the form of minute bubbles throughout the mass; but in my experiments on a small scale, the bubbles of air have all risen to the top in the form of a scum, and the honey has candied no more quickly than that which was not stirred. However, since my tests were relatively small it is possible that I have overlooked some important fact. Some have said that a few crystals of candied honey added to the liquid honey will hasten the crystallization of the whole mass, and in my experiments this has seemed to be a fact. Probably it is sufficiently well understood that a man must create a market for candied honey before he can sell enough to make it pay; but once his market is established, he need worry but little about keeping it up. When people learn to eat honey in the candied state they will demand it in that form and in no other. I think that, in the near future, there will be three great classes of honey instead of two; viz., comb, extracted, and candied. Perhaps, too, in time bulk comb honey will form a fourth class. At any rate, we should be eager to improve our methods, not only by adopting shorter cuts but by putting our product in the forms that will please the people of all "localities."

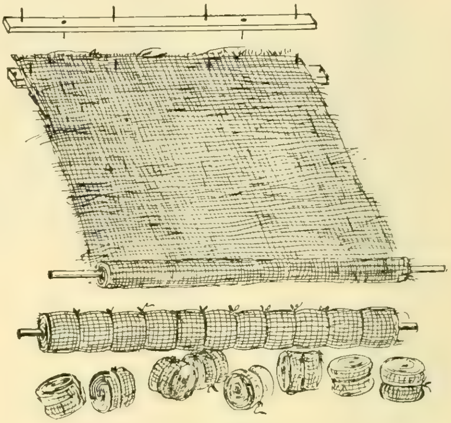
COGGSHALL'S SMOKER FUEL.

How Prepared.

BY W. L. COGGSHALL.

For the benefit of those who have written me and have not received a prompt reply, I will say I hope they will excuse me, as I have a farm and some bees and men to look after. More have inquired about smoker fuel than any thing else of late. Some old phosphate sack (½ lb.) and a dime's worth of saltpeter is all the fuel I need in an apiary of 100 colonies in one season.

First lay the sacks out till they get a little rotten (three months); then drive four wire nails through a one-inch strip about ten inches apart. Now nail that to the opposite side of a work-bench, four nails sticking up. Get a ball or two of cotton twine, not the best. Wind it on a half-inch board, 5×20. Wind the short way around, and the whole length. Now nail another one on it, and nail it to the side of the bench. After cutting all those wound strings on the edge of the board you will have a quantity of short strings to tie around the sacking after it is rolled up. With an assistant, hook the sack over four nails lengthwise of the sack. Take a half-inch rod and roll up the sack, not too tight, but just right. Your experience will tell you better than I can. Unhook the sack, and, with the strings all cut, tie every four inches. After all is tied up, take an ax and let one man hold the rolls while the other chops them off between the strings. Dissolve 2 lbs. of saltpeter, just as strong as it can be. Put it in a pan one inch deep. Sprinkle in a little red lead. Now dip one end of those wads into the saltpeter water, then throw them in a pile to dry. The red will tell you which end to light.



The beauty of it is, you will have a smoke in *ten seconds* that will do business, and it is light in weight in the smoker—*no sparks*, and it will last three to eight hours with light work with bees, and never go out if the material is all right.

I do not expect to convince the world I am always right, and have the best things of the kind. You who try it will not be saying, "The smoker is out; I wish I had some good smoke. Then I would fix those crazy rascals." But you may have to break the string on the wad if you tie too tight. Do not use too much smoke. A little is better than too much—yes, far better. Remember that too much smoke makes cross bees.

Do not forget to flip-flap the oilcloth when you puff a little smoke in. This alone is why oilcloth is better than a board.

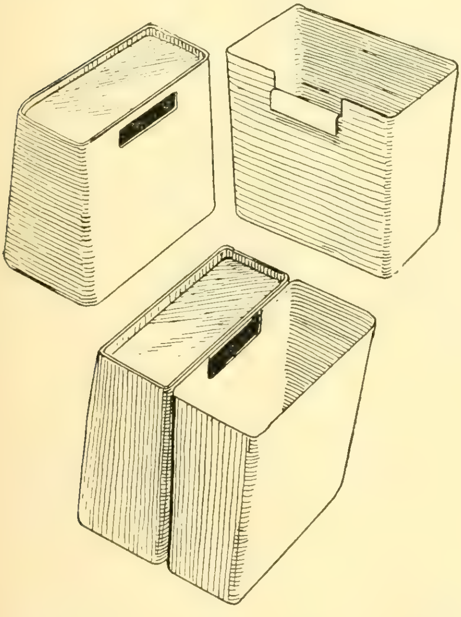
West Groton, N. Y.

THE KEYES (SWARTHMORE) METHOD OF FERTILIZING QUEENS.

A Cheap Home-made Feeder and Hive-cover.

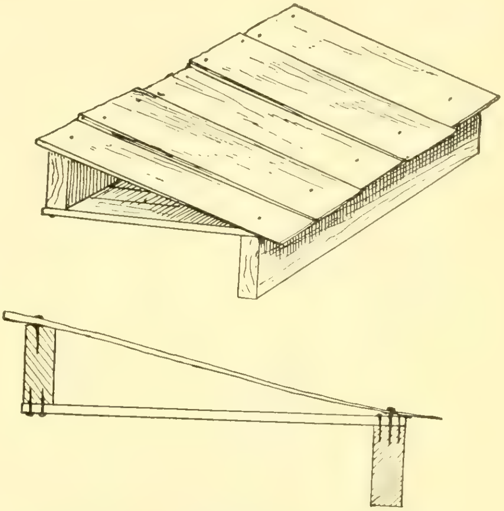
BY W. S. BLAISDELL.

I hereby submit my report of experimenting in the line of the Keyes method. It works satisfactorily under only two conditions—a queenless colony and one when they desire to supersede their queen. But this makes practically a failure. I have tried only the full-size frame. But I went further. I could not see the purpose of the communication from the nucleus to the brood-nest, and I closed them up so far as I had gone in opening them. After that I had no trouble whatever, more than in an ordinary three-frame nucleus. With this change it makes an admirable device. The sides are loosely made and fastened on. A case of hatching brood can be taken from the brood-nest, a matured cell given them; the fertilized queen can be taken out, and the frame of bees given back to the brood-nest, and no loss will be felt. Or two queens can be reared before the bees get too old to do good work.



BLAISDELL'S FEEDER FROM CORN-BEEF CANS.

But stimulative feeding is necessary in all queen-rearing undertakings; hence my device for nucleus feeder: Take two empty corned-beef cans, small size; slit down from the top of one 1½ inches long by ⅜ deep, turning the lip down on the outside. Then take the other can, and in the side of the reverse end cut a slot the same size as the opening, and remove the core. Now insert the lip of the one in the slot, and you have the two joined. Fill the one with feed, and put a few floats to bridge a passage up and down, and cover both with cloth to prevent odor, and a weight to keep it close. Then place the inverted side over a half-inch hole in the cover.



BLAISDELL'S SHADE BOARD AND HIVE-COVER.

Again, while I have my pen in hand let me give you what I may call a poor man's perfect cover. I got tired of handling separate shades, hence my contrivance. I do not want my bees near tree or brush or grapevine, except what I myself put out for the swarms to cluster on. Take three or four or five inch flooring, and cut it up into sections 15 inches long (mine are), depending on the width of hive. Put these together the length of your hive. Now take a 1×3, the exact length of the cover; nail on the rough surface across the ends, one nail in each piece and two in the end-pieces. Take another 1×3, and nail on the reverse side across the opposite ends. The dressed side goes down, the rough up.

Now take shingles or shacks and cover the rough side—18-inch shingles project over mine a little, both on the upper and lower sides. I shall use 20-inch shacks when I can get them. This cover has stood the test under the burning suns and whirling tornadoes of Florida. There is no more ripping-off of shades under the stormy blast. Without any other protection I have yet to find a single breakdown from the heat, and my frames are not wired.

Victoria, Fla., Aug. 31.

MR. FARMER, THE BEE-KEEPER AND CANDY-MAKER.

BY ARTHUR C. MILLER.

If you would know an enthusiastic bee-keeper, just make the acquaintance of Frank H. Farmer, of Boston and Littleton, Mass. He is both a beginner and a veteran. He began bee-keeping only a few years ago; but in the short time he has been at it he has advanced with wonderful rapidity, and now is better versed than many a man who has grown gray in the business.

Personally Mr. Farmer is a wiry, active young man, clear-eyed and alert; in a word, a "hustler." Affable and of pleasing manner, he wins one's good will from the start. Mr. Farmer's business is that of candy-manufacturer. As a recreation he took up bee culture, and rapidly worked into the business of selling bees, honey, and supplies. One floor of the building he occupies in Boston is devoted to the bee-supply trade, and during the spring and summer it is a busy spot. That he may not be separated from his bees, and also that he may have bees and queens handy for immediate satisfaction of all urgent demands, he has established an apiary on a long balcony just outside his factory windows. A picture of part of it is shown herewith. Mr. Farmer stands holding a placard, and at his left is Dr. Holmes, an enthusiastic amateur of Randolph, Mass.

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FARMER'S APIARY IN THE REAR OF HIS CANDY-STORE. SEE GLEANINGS, LAST ISSUE, PAGE 16.

Mr. Farmer's main apiary is at Littleton, Mass., where he has some 50 or 60 colonies in almost as many kinds and styles of hives. Let not the veteran hold up his hands in horror, for this very mixture of hives is of vital importance to Mr. Farmer, enabling him to form valuable opinions as to the merits of types of hives and systems of management, and to advise wisely his many patrons.

He is having a cellar built for wintering uses that he may compare that system with outdoor methods. He is also soon to erect a roomy building for use as an extracting-house, workshop, etc.

The Littleton apiary is on a pleasant hillside well up toward the top. If one may judge from the crops he secures, both in quantity and quality, the location is rather above the average for New England. Besides the Littleton apiary Mr. Farmer has scattered here and there, for twenty miles around, groups of from two to six colonies so that he may get a fuller knowledge of the honey resources of Eastern Massachusetts. He is leaving no stone unturned to make himself a master of bee-keeping. Thoroughness seems characteristic of the man. To meet him is a pleasure; to know him more intimately is an inspiration. Let no bee-keeper visiting Boston fail to call on him at his office, 182 Friend St., where a most royal welcome awaits them all.

Providence, R. I.

[As noticed in our last issue, page 16, I visited Mr. Farmer a few weeks ago. I think I never before saw one more enthusiastic on the subject of bees, and it is indeed, as Mr. Miller says, an inspiration to meet him. While in one sense of the word he is an amateur (I mean an expert, one who loves the art he is studying for the sport of it), he is also in business for the money there is in it. For the length of time he has been studying bees it would be hard to find one who is better posted in all that pertains to the study of the little bee.—ED.]

THE FORMATION OF NECTAR.

Translated from the French by Frank Benton, U. S. Department of Agriculture, Washington, D. C

BY DR. MARCEL MIRANDE,
Laureate of the Institute of France.

[The clear and instructive article following this note was presented by Dr. Marcel Mirande before the Apiarian Society of Savoy, France. Dr. Mirande is a recognized authority in plant physiology, and his views are, therefore, well worthy of consideration. The article was published in the *Revue Internationale d'Apiculture*, Vol. XXV., No. 10, for October, 1903. Upon a careful perusal of it a number of interesting and practical features suggest themselves at once.

First. The occurrence of real honey dew direct from the plants without the intermediary of aphids or plant-lice has often been questioned, and few writers on apiculture have been disposed to admit that such production takes place. My own observations placed me long ago on the affirmative side of this question, and in my manual,* the first edition of which was published is 1896, I said on page 58:

> Under peculiar conditions of the atmosphere, sweet exudations, also known as honey-dew, drop from the leaves of certain plants, and are eagerly taken up by the bees. This substance is sometimes very abundant and of excellent quality. It should not, however, be confounded with the secretions of extra-floral glands such as are possessed by the cow-pea, horse-bean, partridge-pea, and veches. These seem to be natural productions for the purpose of attracting insects to the plants, while the former is apparently an accidental exudation through the plant-pores, brought about, very likely, by some sudden change of temperature. Both are, however, merely the saccharine juices of the plant, and when refined by the bees may become very excellent honey.

Second.—We understand from Dr. Mirande's explanation of the manner in which nectar is produced how it is that plants subjected to irrigation often produce such wonderful yields of nectar. In fact, we begin to comprehend somewhat better the prerequisite conditions for nectar secretion. Further, the suggestion comes naturally that the nectar-secretion of many cultivated crops which are not ordinarily irrigated might, under certain conditions be greatly increased through irrigation. Even in some countries where the rainfall is not deficient, irrigation of certain crops is practiced to increase the farmer's returns. The U S Department of Agriculture has considered this feature of the irrigation question as of sufficient importance to warrant the sending of an expert to Italy, one of the countries in this category, to study the subject of the benefits from irrigation in regions not deficient in normal rainfall.

Third.—Frequent light cultivation of crops—that is, keeping the surface broken and pulverized—draws moisture to the surface and increases deposition. This is, then, in a measure, a substitute for irrigation or rainfall, and as such would in the same manner increase nectar-production by the plant. It follows naturally that plants producing nectar when growing wild, would, under cultivation, increase their yield. Here, then, is a factor which should come largely into any consideration of the question of increasing pasturage for bees through the cultivation of special crops.—TRANSLATOR'S NOTE]

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FARMER'S EXHIBIT OF BEE-KEEPERS' SUPPLIES.

Green! This is the color upon whose infinite chromatic scale our eye rests when viewing carpeted meadows, the foliage of woods, or the somber background of pine forests. Monotony! a morose spirit would say; marvelous charm, harmony! would exclaim the poet, who sees in this fresh coloration the happiest transition from the dull and dark color of the earth to the blue of the heavens, a background upon which flowers of various tints, and the red or golden fruits which succeed them, stand out sharply. He would sing the richness of tones that Nature, with her brush, finds in green for the ideal picture that she offers us.

But here comes Science. Will she be in accord with Poetry? Whilst the latter exclaims with enthusiasm, the former casts at you a cold, barbarous word, the word *chlorophyll*, by which term she designates the coloring-matter of leaves. She explains to you, in the language of chemistry, nearly sibylline, the composition of this matter, and in the severe style of physiology she relates to you its important *role*. We will see, however, that Poetry can gain by her alliance with Science only when she celebrates the beauties of nature, which she embellishes and enlarges by the luminous clearness of truth.

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* Bulletin No. 1, n. s , Division of Entomology, U S. Department of Agriculture "The Honey-bee : a Manual of Instruction in Apiculture." First edition, 1896.

Let me, then, dear reader and bee-friend, say something about chlorophyll, although at first view this subject seems to have little in common with the title of this discussion. But I hope to satisfy your impatience quickly, and reach in this manner a discussion of the nectar of flowers.

If a thin section made with a razor across a plant leaf is examined under the microscope, there may be seen in the interior of the cells which compose the framework of this organ, a large number of small green corpuscles. It is the innumerable aggregation of these corpuscles which gives to the leaf its general tint. Each one of them is a fragment of living matter impregnated with a green pigment which the chemist has been able to isolate and which he calls chlorophyll. These microscopic organisms are the agents of a marvelous phenomenon to which we will call attention in a few words.

Everybody knows that plants breathe; they absorb by means of small openings, or stomata, with which the surface is covered, the air which is to furnish to the plant the oxygen necessary to every living being. But this air brings also to the plant carbon, a mineral absolutely indispensable likewise to life, and which constitutes even the larger part of the weight of the plant. This air is charged with carbonic acid, which, having reached the living plant-cell, is decomposed into its constituent elements, carbon and oxygen. The carbon remains in the plant, incorporated into its living matter, while the oxygen is freed.

But in the plant how is this decomposition of the carbonic acid brought about, this reduction, as the chemists say, the initial phenomenon in the assimilation of the carbon? To accomplish in his laboratory such a reduction the chemist is obliged to develop in his crucibles an enormous temperature. But the plant-cell is a differently constructed laboratory where, without noise, and without appreciable heat, this reduction of carbonic acid is effected by means of a very singular agency, which is no other than the corpuscle of chlorophyll of which we have spoken above.

These corpuscles, in fact, grouped in the plant-cell one next to the other, form a compact green screen interposed among the rays of sunlight and the living matter of the cell.

In the same manner as a red or blue pane of glass placed between our eyes and the white light of the sun transmits only the blue or red rays which constitute this white light, and absorbs the others, so this green chlorophyllian screen absorbs a large part of the solar radiation, permitting only the green rays to be transmitted. In these radiations the luminous rays are the ones which strike more particularly our senses. But along with these luminous rays, others are found: the heat rays, up to a certain point perceptible to our senses; also the chemical rays, which we can perceive only by the effects they produce. It is in this manner, for example, that light acts on a photographic plate though its chemical rays. which decompose, that is to say, reduce, the salts of silver with which the plate is charged; and it is this radiation which figures on the plate the picture of the objects as a silver pencil would do it. The radiation effected by the screen of chlorophyll is likewise the source of chemical energy, which, in the plant-cell, reduces the carbonic acid; as soon as this reduction is brought about, the carbon is incorporated into the living matter.

But the force of the radiations absorbed through the chlorophyllian screen is not employed solely in decomposing the carbonic acid. It serves also to vaporize a large quantity of water which circulates within the plant, drawn constantly from the soil by its roots.

Every one knows that plants transpire, that is to say, that they give off continually water-vapor. Transpiration is a general phenomenon with plants; it takes place both by night and by day. But with those plants which have green matter this phenomenon is increased by the vaporization due to the chlorophyll, and this, therefore, takes place only during the day.

Chlorovaporization is the name which has been given to this particular phenomenon which adds its effects to ordinary transpiration so as to increase the latter to a very considerable degree. Ordinary transpiration alone, in fact even accelerated by the heat of the day, comprises only a small part of the total vaporization. Thus, for a hundred grams of water exuded by a single wheat-plant, hardly three or four grams are due to ordinary transpiration; a field of cabbages where the plants are set at 50 centimeters, 19.685 (or nearly 20) inches, gives off per hectare 2.471 (or nearly 2½) acres, under the complete influence of this phenomenon during the twelve hours of the day, the enormous figure of 20,000 kilogrammes (44,092 lbs.) of water. Imagine the prodigious quantity which is constantly poured into the atmosphere from the meadows and forests! This surprising effect, produced by such a slight cause, chlorophyll, balances the absorption by the roots and keeps up the continual current of water necessary to the plant.

Every evening, as soon as the sun is below the horizon, chlorovaporization slackens, then stops, whilst the absorption of water by the roots continues. This, then, occurring without being balanced through vaporization, results in the internal pressure becoming more and more intense. A time arrives when this pressure is too strong, and the water escapes from the plant. This is the phenomenon of exudation, or of *chloro-*

sudation, in order to indicate its origin. Sometimes this exudation occurs by means of special orifices, the water-bearing stomata; very often it takes place simply through slits and through slight lacerations brought about on the surface of various parts of the plants. It is through a slit produced at the tips of meadow grasses that the water escapes in successive droplets, mistaken sometimes for dew. In the morning the sun shines on these droplets with a play of sparkling light which everybody has admired.

Very frequently the exuded liquid escapes directly from the plant through its epidermis. Many times the water, before running out in very fine drops, has been obliged to pass through portions of the tissues in which the plant has collected for its use reserve materials, sugar principally. In this case the exuded liquid is sweetened, and this is what is commonly called nectar—the nectar which greedy insects come and gather, and which bees carry to their hives to make into honey. The portion of the body of the plant where the sweetened reserve is stored up is dissolved by the water which passes through it, and constitutes what is called a nectary.

Nothing is more variable than the form of the nectaries and their position on different plants; a special chapter would be needed to give a full review of these organs. In the case of the ferns, on the elder, on the vetches of our fields, on the almond and the plum tree, the nectaries are found on the leaves. But it is particularly in the flower, whose parts are in reality only transformed leaves, that nectaries are found in the most diverse forms and positions.

But for the present let us bear in mind only this single important fact: The production of nectar is due to chlorosudation, a phenomenon due itself to the slackening of chlorovaporization. Chlorovaporization varies in intensity with the conditions of the exterior medium: temperature, hygrometric condition of the air, wind, etc. By modifying these conditions, plants which were not nectar-bearing have been made so, and reciprocally the pouring-out of the sweetened liquid from plants furnished with the nectaries has been suppressed. The conclusion from this is that it is to chlorophyll that we owe honey-production. Chlorophyll, then, is what starts into action all those forces which result in the sweet harvest with which our hives are filled. But this is the least of the benefactions which we owe to this green substance. We owe our lives to it.

Yes, our lives! The plant, in fact, fixed in the soil, draws from this soil the mineral elements with which it makes living substances perfect in all parts. The roots bring to the plant phosphorous, azote (or nitrogen), and various minerals. The leaves give it oxygen from the air, and there is lacking in this combination only the principal body, carbon, without which the plant is reduced to parasitism. The chlorophyllian corpuscle, through the admirably simple mechanism of which we have given above a rapid sketch, is the assimilative agent for this indispensable substance. Of all living beings, plants alone are those which make living matter by means of purely mineral elements. Animals themselves can be nourished only from living matter; this matter they take from the object which makes it, from the plant directly, in case they are herbivorous; or indirectly if they are flesh consumers. The plant kingdom, then, is the bond which unites the inanimate kingdom with the animal kingdom. Human life is, therefore, dependent upon plant life, which, it might be remarked, places agriculture in the first rank among social labors. But as the plant in turn exists only through the operation of chlorophyll, and this operation is due to solar energy, it is seen at last that the sun is the source of all life upon the Earth.

Poetry, join, then, with austere Science in a song — a duet of love and recognition to Nature, who is able, with extremely simple means, to accomplish the most marvelous phenomena. Intone a hymn to the sun, as in the times of those distant peoples who adored the deified Astræa.

MODERN QUEEN-REARING.

As Practiced at the Root Co.'s Yards; a Brief and Comprehensive Treatise on the Latest and Best Methods, Gleaned from all Sources. Continued from Last Issue.

BY GEO. W. PHILLIPS.

One frame of sealed brood (preferably hatching) and one of honey with enough adhering bees to cover both will be enough for a nucleus, if the weather is warm; but if not, the strength must be increased. As a rule, it will be necessary to shut up these little colonies for three days in order to let them remain in their new location, although where one knows how to manage, he can choose brood and bees of such an age that the confinement will be unnecessary. By giving twice the number of bees and all hatching brood, one can obtain a nucleus of desired strength even after the older bees have deserted. These nuclei can be formed in regular-sized hives, and a division-board adjusted to the size of the cluster.

Upper-story nuclei.—Divide a hive-body into three compartments, the same as recommended for cell-building; only, instead of using perforated zinc division-boards, use wirecloth on a framework of wood. Tack a screen of the same material on the bottom of the hive-body. Bore three one-inch holes near the bottom edge to act as entrances, one in each side and one in one end. Put it on as upper story to some strong colony, letting the hole in the end turn in the direction opposite to the entrance of the colony. Form three nuclei in it as advised above. This kind of arrangement helps to conserve the heat, makes their manipulation handy for the bee-keeper, and renders uniting easy. Let each compartment have a separate cover of thin board, and over the whole put a regular hive-cover. Don't form your nuclei until the cells are ripe. If you do, there will be no advantage gained, as they will have to remain queenless until that time any way. Put the cells in protectors, and give one to each nucleus as it is formed, in the manner indicated in Fig. 10. By the time the virgin hatches, the old bees will have returned to their old location, and the young bees left behind will accept her readily.

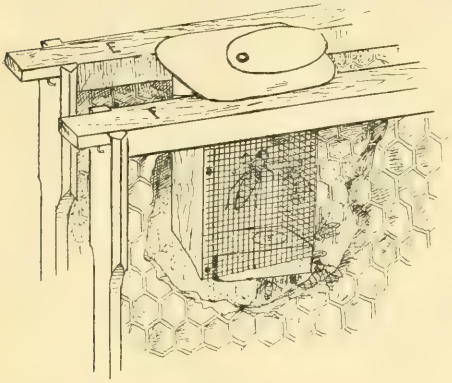

Fig. 10.

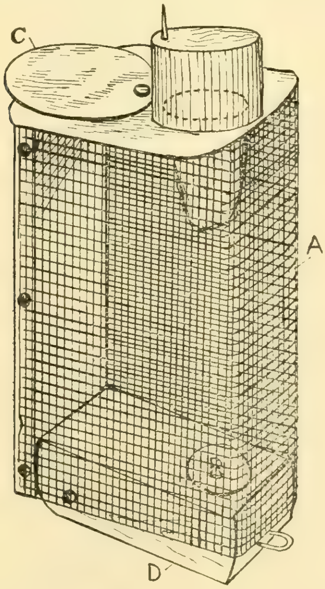

Fig. 11.

It will be seen by referring to Fig. 10 that the wooden cell-block does away entirely with the use of the tin cover on the West protector.

THE QUEEN-NURSERY.

The nursery is essential to successful queen-rearing. Especially will it be found indispensable by the man who produces queens on a large scale. Fig. 11 shows a combined nursery and introducing cage. This was gotten up by Mr. Abram Titoff, one of our apiary hands. The top is made of tin, and has a hole in it for the reception of queens or queen-cells. A piece of the same material loosely riveted serves as a cover for this. The body is made of wire cloth, and at the bottom is a hinged block of wood with a hole for candy. The candy-hole has a bit of tin pivoted in the center on the outside of the block, and so arranged as to cut off or expose the candy; see Fig. 1. This arrangement will be referred to further on.

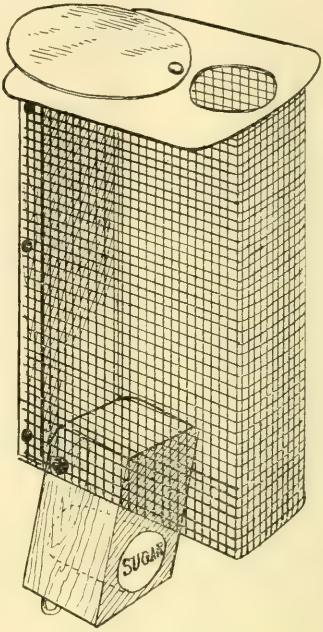

Fig. 11.

Ten days after the cells are grafted, remove them from the queen-rearing hive. *Don't shake off the bees* or you will in all probability ruin every queen. Give a little smoke, and brush them off with a feather or small brush. Set the frame on the ground in a standing position and in such a manner that it won't fall or slip in any way. Detach the blocks one by one; with your finger daub a little honey on the end of each cell so that the queen can feed herself

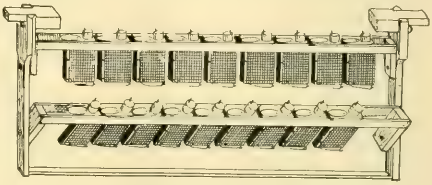

Fig. 13.

while gnawing her way out, and place it in the nursery-cage as shown in Fig. 11. Bear in mind always that you can not be too careful in handling sealed queen-cells. The slightest jar will sometimes kill a queen or injure her seriously.

Fig. 13 illustrates a nursery-frame full of cages with ripe queen-cells. Put the frame in a strong upper story, or, where this is not obtainable, in any queen-rearing colony, or even one with a normal laying queen. Always see that the cages have a supply of fresh candy so that, should the bees refuse to feed the virgins when they hatch, they will be in a position to supply themselves with food; also see that the tin covers the candy-hole in each cage; if not, the bees will eat their way in and your cages of cells will soon be in a bad mess. Where virgins have to remain a week or more in confinement, they will be found to do better in a queenless colony, as queenless bees will lavish more attention upon them.

To be continued.

Heads of Grain
from different fields

NAIL SUPPORT FOR FRAME.

Mr. Root:—On page 1044 you want to hear from those who have tried a nail for a frame support, and not sooner or later abandoned it. I first used it in several hundred hives that I built in California as far back as 1876. I then used a cut nail. I now use a headless wire nail, made to my order at the factory, and decidedly prefer it to any other support for a *self-spacing* hanging frame. But when I used it without any self-spacing device, and allowed the frame to swing loose, as on a pivot, I soon decided against it as being entirely *too* movable for practical purposes. Your objection, that a nail is not strong enough, is overcome by using a larger one. A six-penny finishing is much too small.

If I were using the Hoffman frame I should prefer it supported by a headless nail, and then omit the tin rabbet as needless. You have practically the same thing in the Danzenbaker hive. I. A. King.

Derby, Texas.

[The device used on the Danzenbaker is not a nail but a large iron rivet, the shank of which is very much larger than an ordinary nail. Then, further, the rivet head is *imbedded* in the wood on the *inside* of the end-bar, making the part that projects much stiffer.

Extracted-honey men, at least many of them, would object to a nail support for the ordinary hanging frame. As it is, some of them don't like the shortened projection of the end-bar as now used on the Hoffman frame, and I fancy the nail would be more objectionable still.—Ed.]

FORMALDEHYDE FOR FOUL BROOD; THE REASON IT SOMETIMES FAILS.

I have noticed some discussions about the use of formaldehyde for the destruction of foul-brood germs. Some seem to think that it is of no use; but I know the failures occur only through a lack of knowledge of the gas and of its use. Some data I have gathered from government reports and other sources. I have learned that the foul-brood germ is a fungus composed of albuminoid matter. Formaldehyde gas unites with it, and decomposes it so that it will not grow. Brother Weber's treatment is all right, but the dried-up cells that he speaks about should be immersed in a three per-cent solution of formalin for a few hours, in a temperature of about 80°, then subjected to a fumigation of the gas in a temperature of 40°, and it will not fail in any case. The English use it in a solid form in the rear part of the hive on the bottom-board. Colonies that are afflicted with the disease are rendered immune as long as the gas is allowed to remain in the hive, but will reappear when taken away. Formalin gas is now used as a disinfectant for all contagious diseases by the boards of health of various cities and towns of our country. Why not give it a thorough trial? I do not see why Gleanings should not have a laboratory, and investigate. I for my part would be willing to pay an increased rate of subscription to cover the expense. The paper would give facts, not summaries. What say you, brother bee-keepers? I think it would pay.

Massillon, Ohio. E. A. Newell.

[A laboratory would hardly be practicable at this office, as there would not be enough work to keep it going, even if we could employ a competent man to take charge. It would be better for us to depend on the statements of trained men at our universities and colleges, where all the facilities are at hand.—Ed.]

HOW TO PRODUCE GILT-EDGED BUCKWHEAT HONEY.

The production of buckwheat comb honey during a good season is quite simple, and consists in boxing all strong colonies. Sometimes the conditions are such as to produce a swarming mania. Especially are such colonies disposed to swarm as have old queens. They are usually the colonies we "shook," or the new swarms, and are not on a full set of combs. When the season is not very good, and we care not for any increase, a very good way is to unite two and two of such colonies and shake them. Later these shaken swarms may be reinforced with bees from upper stories, the same as was done during the white-honey season. But one must feel his way. This reinforcing at this season of the year does not always work. Sometimes the added bees are unmercifully slaughtered. If the bees are disposed that way, better not try the experiment a second time. In order to obtain the finest honey I shake on but five frames or a half-story, the latter giving the best result. Only starters are used. The brood-combs obtained are massed together on as few hives as practicable; and when the season is over, the swarms that were shaken on half-stories are placed back on to these same combs; those shaken on full-sized frames receive enough of the combs of honey and brood to fill up their hives. When this is done as soon as the honey-flow ceases, in this locality about Sept. 7, the colonies so treated will usually be in good shape for winter. If wintered in the cellar they come out just as well in the spring as others that were on a full set of combs all the time.

When the buckwheat season begins I often find myself with colonies that were tiered up with those sets of brood-combs from the latest shaken swarms. Sometimes there are three or four sets of these combs on one stand piled up, with an immense quantity of bees in them. The colonies with queens of the same year's rearing are simply reduced to one story about Aug. 6, and the sections are applied (only small starters in them). A large yield of fine buckwheat comb honey may be expected of them. The colonies having old queens are shaken on half stories; starters only both in frames and sections. At this time of the year there is little danger here of pollen being stored in the sections. These colonies will produce the honey that will tickle the palate of the epicure (if it is buckwheat), and take the cake at the fair if the judges know their business, and not give the all-worker comb honey built on comb foundation the preference. F. GREINER.

Naples, N. Y., Dec. 22.

THAT CELLAR WITHIN A CELLAR; THE ADVANTAGE IN HAVING A FURNACE IN A CELLAR.

My cellar within a cellar is working finely—see page 1009. I can absolutely control temperature, secure the requisite dryness of atmosphere, and have the air as fresh as it is out of doors any time. Of course, it requires constant attention; so does my furnace; and as I attend to the furnace I look after the temperature of the bees. A thermometer hanging inside gives the temperature; and if I find it too high I open the window sufficiently to adjust the difficulty. If too low I have the door of the bee-cellar open to let in a little of the cellar air. In this way I can keep the temperature within 5 degrees all of the time. I do not think I have spent ten minutes a day regulating the affair, and I do it in connection with caring for my furnace. There is no doubt in my mind that in this climate, 44⅓° north, a furnace cellar can in this way be better regulated than any other cellar. If I had a large number of colonies I would box the furnace in the same inexpensive way I partitioned off a corner for the bees, thus utilizing my whole space for the bees, operating the same regulating process which I now use. I can not speak at present of the ultimate outcome, but I do know that I am controling the temperature, and securing conditions which are in harmony with good results. I offer this bit of experience for what it is worth to some one who may be as perplexed as I was.

Gardiner, Me. L. H. CLARKE.

DASYLLIS SACRATOR, OR BEE-HAWK, AND HOW TO KILL THEM.

I notice on page 725 that Mr. Frank Benton doesn't seem to think it practicable to destroy the bee-hawk. I think that, if he were here trying to raise queens, he would wish that they were all dead. I suppose that, where there are only a few, they are not so much to be dreaded; but there are thousands of them here. One of my neighbors told me that he has had quite a little trouble with them. When his young queens go out on their wedding-trip they don't get back. In this locality they are very destructive to bees. I am satisfied that they catch other insects; but they are not apt to bother about hunting them up when they can stay right in our bee-yards and see thousands of bees at one time.

I was a little surprised one day last summer to see a bee-hawk holding to a good-sized bumble-bee. I hardly ever see many of them before July, and raise my queens in May and June, and they are not here then to catch them. We have a few mosquito-hawks here. I have seen them in the bee-yard. They have four wings, and are larger than the bee-hawk. My advice to friend Stafford is to use a shotgun on them. Get the smallest shot you can find, and put small loads in the gun, and kill them; and my advice to all bee-keepers is to kill every bee-hawk they can. There seems to be more of them each year. W. T. DAVIDSON.

Velken, Ind.

A 12-LB. SWARM; DOES IT BREAK THE RECORD?

On page 1041 you express the opinion that a 9-lb. swarm is the biggest we shall ever have in the northern part of the United States. You will have to change that opinion. On July 3 of this year I had a swarm come out of a hive that was on scales. I had balanced it about ten minutes before; and when the bees were all out, the scales showed a loss of 12 lbs. The hive had two stories (eight frames), with the queen having access to both. GUSTAVE GROSS.

Lake Mills, Wis., Dec. 19.

[We shall be glad to get reports from others. Perhaps we can break the record again. Let's see—a 12-lb swarm means from 50,000 to 60,000 bees. Who will beat this?—ED.]

OUR HOMES,

BY A. I. ROOT.

RECENT DEVELOPMENTS IN THE FIELD OF SCIENCE.

What hath God wrought?—NUM. 23: 23.

In my earliest childhood, as far back as I can remember, it was my delight each day to find out some new wonderful thing to be investigated, explored, and perhaps discovered. My first financial venture was in poultry. By the way, I am told I asked so many questions when I was a child, that no one could answer, there began to be a demand about that time for cyclopedias. My grandfather had an old one which I used to borrow, and study with great delight. When I first became the owner of some chickens I began questioning everybody. Then I got hold of some agricultural papers, and went over the numbers for a year or more back, just to find out all there was said about poultry; and being still unsatisfied I began to question my "biddies" themselves; and I began at a very early day to learn "hen language." You may laugh at this, but my fowls themselves began very soon to tell me in plain language what they did want, and also what they did *not* want—sitting hens, for instance. Whenever one of my biddies wanted to sit, she said as plainly as words—yes, plainer still—"You just let me alone. I know my own business." Her words were emphasized also by sundry pecks. Hitherto I had been in the habit of giving her loving pats on the back; but *now* she just wanted to be let alone. In due time some chickens were hatched; and no one who does not love poultry as I loved it then can imagine the delight with which I studied and investigated these interesting bits of God's handiwork. In searching the agricultural papers and cyclopedias for facts about poultry I ran on to no end of wonderful things; and the knowledge thus gained has been of inestimable value to me all through my busy life.

And herein is the value of selecting some line of work — to get astride of, as a hobby you may say. If one goes at it with energy and determination, studying it at every opportunity, every line, even remotely connected with his new "craze," it gives him a vast amount of information that will now and then through life be of value to him in getting a symmetrical and well-rounded knowledge of men and things.

When I was twelve or thirteen years of age I got a glimpse of the wonders of electricity. The new science was just then unfolding, gradually. I wanted a galvanic battery. My friends all around said I was not old enough to make one. I remember investing some of my hard-earned pennies at the tinshop, in copper and zinc. The *tinner* told me I was not old enough, but I pushed ahead. My battery worked all right, but I had it for months, and did not know it. If I remember correctly, I cried over it. The trouble was, I had not the apparatus to go with it to make its power *manifest*. Well do I remember the day when I balanced a magnetized steel pen on the head of a pin driven into the table, in my little bedroom. The steel pen promptly swung north and south, like any magnetic needle. This I was familiar with. On this particular day, however, I placed the wire, which connected the copper and zinc in my battery, just over the top of the balanced steel pen. When I made the connection, the steel pen jumped with a new life, and swung around toward east and west instead of north and south. My battery was O. K., and for the first time in my life I was the owner of an electric current that exhibited energy. As soon as I could make the necessary arrangements the steel pen was off at a distant part of the room, and some cheap iron wire carried the current. With my battery several yards distant I could make the steel pen swing to the right or to the left; and then I got a glimpse of the fact that the same thing could be done, even with a battery a mile or miles away. From that time on, my experiments succeeded. Before I was eighteen I was traveling around to the schoolhouses, giving exhibitions or entertainments, and teaching, after a boyish fashion, to eager crowds, the future possibilities of electricity and chemistry. Electricity was my craze until I got my eyes and my mind on the honey-bee. I need not tell you of this, because most of you know more or less about it. Of course, all along there have been more or less side issues of exploring, of inventing, and discovering; but the point I wish to make here is that no one knows of the joys and thrills of pleasure that come to one who delights in exploring God's works in this way unless he has been through it himself. A good many times people say to me, "Mr. Root, you need a little more charity and sympathy for people who are not like you. You never care for games of any sort—baseball, croquet, lawn tennis, etc. You may not need recreation as other people do; but the majority of the world need *rest*—a change of work and a change of thought."

We have all heard something in the line of the above, again and again. I do not think I am so very much different from the rest of the world, after all. I like a change of work and a change of thought; in fact, I am changing my occupation and my thinking every day of my life. But some way or other, I do not just feel satisfied unless *each hour* produces some profitable result. I can not with a clear conscience ride a wheel or take a trip in my automobile unless I have some *special errand*. I want to *accomplish* something. I should be ashamed to have people think I was riding about just because I wanted to pass away the time. God forbid that I should ever wish to get rid of a single hour that he in his wonderful kindness has seen fit to grant me as a precious gift.

Now, do not misunderstand me. This following out and developing new lines is not an unalloyed joy. I never could have experienced that thrill when I was experimenting with my simple apparatus with a battery and steel pen had I not been through weeks of discouragement because my battery would not work; neither should I enjoy my automobile as I now do had it not been for the days and weeks that it took me to *learn* all about a machine that is necessarily more or less complicated. Men who have wealth, especially where the wealth has been inherited, so they do not have to work hard for any thing, can have no such enjoyment as you and I have. They are to be pitied. At one time when I was studying the honey-bee the matter seemed to be so intricate and complicated I could hardly believe I should ever get to be an expert. I once bought a choice queen. I searched for the black one I wished to replace, until I was almost ready to give up in despair. I told my good wife that, if it were not wicked to waste so much money, I would make a trip to Quinby or Langstroth, and ask them to *teach* me how to find the queen in a hive full of black bees; and I remember distinctly wondering then whether it were possible *I* should ever be an expert in that line, and be able to teach others. Why, I craved the possession of skill, along that line, more than I craved any thing else this world has to offer. Little by little I acquired the coveted knowledge; but it took months and years to do so. Later I became interested in greenhouses, especially growing lettuce under glass. I had bad luck with it. I wrote to Peter Henderson, and asked him so many questions that he probably could not take time to answer them. Then I sent him some postal cards addressed to myself, and begged him to write yes or no in answer to my questions. He kindly did this, and added some valuable information—at least it was valuable to me; but the matter was very complicated, and there were so many circumstances and conditions, many times, that I despaired of ever becoming an expert. But I followed this line of work for over twenty years, and succeeded beyond my highest expectations. I not only learned how to accomplish wonderful results, but I keenly enjoyed the pleasure of writing books on strawberries, potatoes, tomatoes, and other garden products, telling others, who were eager to know, *how* these results could be accomplished.

A few days ago, when I was having so much enjoyment and so many triumphs over difficulties in running my automobile during the winter time, I felt as if I *must* give other people the benefit of my triumphs; but I reasoned that our journal is a bee-paper. Of course, it has a side issue in High-pressure Gardening, Health Notes, etc. This is all right, for a great part of our bee-keepers are also more or less engaged in growing crops; but when it comes to the auto I reasoned there are probably so few who feel as if they could afford one, or even were interested in the matter, that such talks would be out of place. Perhaps the greater part of our readers are prejudiced against automobiles. I considered writing for some one of the half a dozen or more automobile journals; and then there came a feeling that I have not for years written any thing for any journal except GLEANINGS, although I have had some big offers of pay if I would do so. And then I made this decision — that, so long as God lets me live, whatever good I can do in the way of teaching or instructing shall be given through the journal that I started almost in my boyhood. Since making that decision I have found quite a few bee-keepers who are thanking God that it is their privilege to own and enjoy an automobile. There is Doolittle, of New York, and Mercer and McIntyre, of California; and another, whom Ernest has recently visited and ridden with (Mr. F. A. Salisbury, of Syracuse, N. Y.), in an Olds automobile purchased since I bought my own. People talk about "riding hobbies;" but the auto and the wheel are the only hobbies I have ever been able to *ride* in real truth.

Now I wish to tell you something about the enjoyments I have had with it during the past wintry months of November and December. When the zero weather came on us so suddenly I was reminded that the water in the radiating-tubes would freeze and burst the pipes unless something was done. So I took the poultry house I have told you so much about, close by our dwelling—the one that is over the pipe that carries the exhaust steam to our home. The hot earth underneath keeps it all winter long above the freezing-point. By making double doors instead of a single door, the automobile goes back into this poultry-house. It is a nice warm place when any repairs are needed. There is an abundance of daylight, for the south side and the roof overhead are made of glass sashes. As an electric wire runs near, I soon had this house lighted by electricity, so I could look the auto over evenings, giving it loving touches here and there, just as I used to do with poultry when I succeeded in making them lay in winter. Well, the auto would start out; and after the engine was once in motion it would keep the water warm, even in zero weather. But sometimes I wish to stop for an hour or more, leaving the machine outdoors. This is especially the case in attending church. By the way, I have never heard, that I know of, of any one before using an auto to take people to church. It makes me sad to think that the greater part of their owners, so far as we can learn from the automobile journals, not only do not attend church, but I am afraid they never *think* of churches. The great runs are mostly made on Sunday; and I fear this is often the case, because Sunday is the only day the owner can get away from business. A man and his wife recently made a wonderful trip in an automobile of his own manufacture; and he made it on Sunday, taking his wife along. Let me digress.

Mrs. Root has for several years lamented that we are so far from town and from church; and she has even asked the question if we could not, as we got older, have a residence near the church, markets, stores, etc., and live there, at least in winter. Just now we are more than half a mile from church and Sunday-school. Well, the auto has solved the problem. For the last two months the children (and grandchildren) have all understood that, if they wanted to make father (or grandfather) happy, they just had to tell him they would like to be taken up street at such an hour or minute. This gives me the open air in all kinds of weather, and I never *tire* of running my beloved vehicle.

One morning recently I carried four loads of people from "Rootville" up to the church. We usually take four at a load; but we can easily carry five when the roads are good, and six or seven if part of them are children. Of course, I would not think of running my auto on Sundays just for the fun of it, frightening horses, perhaps, when there is no particular *need* of it. The way I manage, however, I seldom frighten a horse; but sometimes it is a little annoying to the drivers. I have learned so that I can slow up to a speed not faster than a person can walk, and with the machinery so managed as to make almost no noise. Then by talking to the horses I get by without any trouble.

Something comes in just here that reminds me of the dear friends who have criticised because they feared I was getting to be a little loose on the question of Sunday observance. By offering to take them on the auto I got several people to go to church who might not have gone otherwise; but if you should question me closely, and ask me which was the inspiring motive, to get people to go to church or to have an excuse for running my beloved auto on *Sunday*, I am afraid I *might* have to plead guilty to the latter. I for one would be exceedingly glad to see all the automobiles used to enlarge instead of decrease church attendance. Between church and Sunday-school a lot of our people want to be brought home; and after Sunday-school there are usually two trips more; and in order to get all our people out to hear the excellent sermons we have Sunday evening, I have the same program over again. After dark I enjoy the fun of lighting the lamps and seeing every thing work to its fullest perfection. Why, in the drill I have had in working with and manipulating that auto I can detect the slightest sound or vibration of the machine when it get a little bit out of order. When others can hear nothing at all I am following out and locating the slight imperfection. Since I have been on this drill, and acquired a trained mechanical ear. it annoys me to hear a door opened when the hinges need oiling; yes, and when somebody grasps a doorknob where the interior of the lock is grinding for want of oil, I feel an almost irrestible impulse to get my neat little screw-driver and equally neat oilcan, pull the lock to pieces, and give the parts timely attention that are going to ruin because of the need of oil.

Well, I shall have to confess that, in going to and from church, my mind and all my sensibilities are keenly on the alert in watching and enjoying this new hobby; but when I get inside, I doubt if our good pastor has many hearers who listen more devoutly and intently than I do. I have heard him say that no other one of his hearers questions, asks for further information, and sometimes criticises, as much as I do. Exercising all my faculties in using that automobile Sunday morning wakes me up and prepares me to take in the sermon much better than I could otherwise.

A word here about leaving the auto standing out in the cold during the sermon. After much investigation in reading the auto journals I have discovered that, if we add to the four gallons of water in the tank, ten per cent of glycerine and 3 lbs. of calcium chloride, the liquid or solution will not freeze. In fact, I keep a saucerful standing outside of the auto-house all the time to be sure that the liquid in the coils can not get frozen up.

Now to the question, "Is it a piece of extravagance on my part to pay $650 for such a machine, or is it a good and sensible investment?" While I like horses in a certain way, I do not enjoy caring for them. I do not like the smell of the stables, I do not like to be obliged to clean a horse every morning, and I do not like to hitch one up in winter. I dislike plodding around in the snow, handling an icy harness. Perhaps I might have a warm stable—one that is always warm, like my auto-house; but I should not enjoy it even then. It takes time to hitch up a horse; but the auto is ready to start off in an instant. It is never tired; it gets there quicker than any horse can possibly do. A skillful operator will back up, twist around, run in and out of intricate places, in much less time than any horse could be manipulated. I can take the women-folks up town, bring them back, do errands, and manage it all with my overcoat, and with thick warm mittens on my fingers. The heat of the engine keeps the vehicle warm to a great extent, and a comfortable robe does the rest. Yesterday a pretty fair-sized wagonload of bee-journals was to go half a mile to the postoffice. The horses were not hitched up, and the driver was helping in the lumberyard. I said I could take all of the mail sacks nicely at two loads; but we finally piled them all on at one load. It was a little trouble to keep them from falling off; but I got them to the postoffice much quicker than could have been done with horses.

When the machine is in perfect order, the time required for it is very little indeed.

Much less oil is needed in winter; and so far as giving it water is concerned as we have to do in summer, a quart of water once a month seems so far to be ample. I very well know that the repairs have, with many machines, taken a big lot of both time and money; but we should all remember that these new vehicles are in a great measure still in embryo. New inventions in the way of short cuts are coming thick and fast; but the time is already here when many kinds of business—that is, many kinds of transportation of both passengers and merchandise — can be managed with the automobile quicker and perhaps *cheaper* than by the aid of a horse.

Now, this paper is already a pretty long one; but I wish to mention one thing more that just now thrills my very soul.

"THE TRUTH ABOUT RADIUM."

The above heading is the title of an article in *McClure's Magazine* for November. If you have not seen it, and especially if you are interested in the wonderful developments in the scientific world, I would advise you to get it and read it. When the stories first came out in the papers about radium I pronounced it a humbug, especially the part that claimed it gave off both heat and light as well as energy (radio-activity) without being consumed, or losing any of its weight. Soon after reading the article in *McClure's* I imported from London a microscopic sample of radium. It has been in my possession for just three days. The instrument cost $9.00. It is about the size of a small seed-microscope, and it contains a quantity of chloride of radium; but the quantity is so small that you could scarcely see it if it were suspended on the point of a needle. But this little bit of radium has been for three days past (I do not know how much longer) sending out showers of tiny shooting stars. It has been described somewhere as "the bombardment of meteors." You look down in the lens of the microscope, and see something I can describe only by saying it looks like a piece of iron which a blacksmith has overheated, throwing out sparks in every direction. We are told this keeps up *forever and ever* without any loss to the radium — at least none that can be measured by the finest scientific tests. I put it on my stand by my bed every night; and whenever I awake to consciousness I get up to see if it is *still* there and still glowing. In the night time, when it is pitch dark, the flashes can be seen flashing out of the eye-piece, at a distance of several yards. In this position it looks like a twinkling star. There is a regular "twinkle, twinkle;" and when you put your eye down to the eyeglass there is that wonderful "bombardment," a perfect shower of brilliant scintillations or shooting stars all radiating from a common center; and the crowning wonder of it all is that it *never* ceases.

I can not take the space here to tell you all about radium. At the present time I am told that a large refining factory in Germany is working day and night to fill orders at $2000 a gram. The dictionary says a gram is equal to the thirtieth of an ounce. When the article to which I have referred was written, there was only about an ounce of radium in the whole world; but nobody knows how much there is now or will be during the year to come. May God be praised for these great and wonderful gifts he has bestowed, and is bestowing, on those who are willing to *study* and *toil*, and to search out and find the gifts he has provided for us, even before the world was.

IS THE "SCALPING" BUSINESS IN SELLING RAILWAY TICKETS A SWINDLE?

Mr. A. I. Root:—You speak of ticket-scalping as being a swindle. Now, I fail to see wherein it is a swindle. Of course, it is wrong for a man to sign a wrong name; but the blame for his doing so rests with the railroad company that forces him to do so in order to get his rights. When any one goes up to a ticket-office and buys a ticket to some distant place he doesn't buy a bit of cardboard nor a strip of paper. He buys *transportation for one person* Whether for himself or for some one else makes no difference to the company, so long as it is paid for said transportation of one person. The reason there is so much red tape about the tickets is because there is money in it Some one either loses his ticket or doesn't want to use it, or possibly for some reason can't use it. The railroad company has been paid for it, but won't give the transportation to anybody else, simply because it has the power not to Uncle Sam pays the face value of the transportation charges on stamped envelopes etc., back to any one when the envelopes are damaged beyond use, simply charging for the envelopes which are spoiled — a case analogous to the above.

I read your articles in GLEANINGS with a great deal of interest, and should like to hear from you on this subject again. There are too many wrongs in this world yet for any of our good prominent writers to be upholding any of them. R. H. YEARNSHAW.

Walnut Grove, Cal.

Friend Y., I am glad to answer you, because I think a good many other people are making just such mistakes as you have made. You say when one goes to the ticket-office he "does not buy a bit of cardboard or strip of paper," etc. Now, this whole matter depends on what the agreement is. In order that there may not be mistakes or room for argument, the railway company prints what it agrees to do on every ticket sold, and it seems to me they make it very plain. A few days ago I went to a ticket-office in a neighboring town and called for a ticket to Medina, Ohio. I took the ticket and laid down the money. When I handed it to the conductor on the train he looked at the ticket and then at me. Said he, "Where do you want to go?" When I replied, "To Medina," he held the ticket up before my eyes, and it read to a town off in another direction. I argued that I was an innocent party in the transaction. I called for a ticket to Medina, O., and paid the money for it. I said, "If a ticket agent in the employ of your company did not give me what I asked for and paid for, your company is responsible and not myself."

He replied, "You and every other purchaser of a ticket are at fault if you do not look at it and see whether it reads as it should. Because you did not look at the ticket at all I shall have to ask you to pay your passage. When you get to Medina, if you will hand it to your ticket agent he will send it back to the seller, and return you your money."

Some of you may not agree to this; but I think, on further reflection, the conductor was right. Whoever buys a railroad ticket, *or any thing else*, for that matter, should examine the article and see whether it is exactly what he paid his money for and expected to get. The man who pays his money, and then sticks his purchase in his pocket, without looking at it at all, ought to get into trouble to teach him to watch and see what he is doing—not only to avoid being swindled, but to save trouble and unnecessary delays in the general business of life. Let us now go back to our statement.

There are a good many kinds of railway tickets. Some of them say, "For this special person and this special train." Other kinds of tickets read just as you have it—transportation for somebody, no matter who, to a certain place, no matter when, or within a limited period. Tickets of the latter class, scalpers can use legitimately; but tickets of the former class can not be used, as I see it, without transgressing legal or moral law.

Then you make another mistake in saying the railways make a speculation on the one who loses a ticket or who does not use it or *can not* use it. I suppose you know I travel a great deal. Very often I can not use the ticket I have purchased; and in every case of this kind so far in my life the railroad companies have paid me back the price of the ticket I could not or did not use.

At Niagara Falls I blunderingly got on the wrong train, and was obliged to pay $2 50 extra to go to Toronto on the boat. When I told the railway company about it they paid me back the price of the ticket, and returned to me the $2.50 I had paid the steamboat company because of my blunder. I did not lose a copper by the transaction, because a railway man told me when I got aboard I had the right train, when he was mistaken. At the Buffalo exposition I purchased a sleeper ticket from Buffalo to Cleveland. After I got on the train I found the sleeper would reach Cleveland before midnight. I explained my blunder to the conductor, and he said if I chose to take a seat in the other car the sleeper company would *probably* return the money when I explained the matter to them. They did so without a word.

Now in regard to excursion tickets. This is a complicated matter, and perhaps my explanation may not be correct. If so, I wish some railroad man would set me right; but it is something this way:

The railroad companies make preparation to carry a great number of passengers to some particular point, on account of the G. A. R., or something of that kind. They run extra cars—perhaps extra trains. They try to make a wholesale business of it. They say, "If you will go on such a date, and use a ticket that applies only on the special train. we will carry you at half the regular fare, or less." Well, in *going* this works all right. They can carry a big crowd a great deal cheaper than they can a few persons. But many of these persons are Yankees. They want to look over the world, and they do not want to go back until they get ready. Furthermore, they usually want to go back some other way, so their return trip will be through some part of the country they have never seen before. Well, these railway companies, when they take a notion, are very liberal, and so they say, "If you go with us on that special train we will not only let you come home when you wish, within a certain limit, but we will let you choose your route home. If you prefer to travel on some other road than ours on the return trip we will take the money out of our pockets and pay this other railroad company cash for carrying you."

Now, this the railroad company could afford to do if its patrons all did exactly as they agreed, or according to the printed agreement on the ticket; but the railroad companies have learned by experience that these same *Yankees* who are so anxious to see the whole world, and stay as long as they please, are also greedy on a trade, *especially* if they can make a trade so as to save a little money. Some of them may conclude to stay a while, we will say in California; and when one of them runs across a man who is going back east he sells him *his* ticket at a very much lower price than he could buy one outright. But this new party has to pretend he is the original purchaser. He has to sign a name to the ticket that is not his own. He does something that would be called forgery, if it were not in a railroad-ticket deal. You admit this is wrong; but you seem to take the ground after all that the railroad company is not injured thereby. But it *is* injured. It loses customers who would otherwise pay the regular established prices. Many seem to think these prices are a great deal too high, and that it is not any thing particularly wrong to cut down the price established by the railroad company. But, my good friend, these same companies have agreed on an established price. You can not travel on any other railroad, and you can not travel in any other way any cheaper than the regular printed rates. If their prices are too high, as with every thing else there will soon be competition, and prices will come down. I do not know that ticket scalpers are always dishonest men; but they are usually a *tricky* sort of people, and every one who deals with them knows their reputation. They do not make a living by dealing honestly as people do in other lines of business. Very likely a part of their business, and perhaps a great part of it, is legitimate and honest. I for one want nothing to do with a man who coolly looks you in the face and says there is nothing wrong in signing another man's name, for the reason that "it is done every day by all sorts of people." Just one thing more in closing:

People in all kinds of business offer special bargains, or special low rates, providing you comply with certain conditions. A good many times an outsider can not see what difference it makes whether you comply exactly with the letter or not; and perhaps it might take considerable time to make the thing plain to customers who want something a little different. I might give one illustration right here. A man wants a hundred hives; but he does not want them exactly like the regular run. He explains to me that the change he wishes will be really less work than the regular goods; but when I tell him they will cost him more money made that way, even though I admit it requires less work on the hives, he can not or will not believe I am honest, even when I explain it will cost *us* quite a little more than to have him take the regular goods. The trouble is, he fails to recognize that we have to stop a busy factory, or throw things out of joint, more or less, to make something out of the regular routine. Now, it is the same way with our railroad companies. Whenever I have a chance to look into their methods of management I find reasons for their "red tape," as we call it, that I could not understand when I stood outside.

SOME REFLECTIONS (?) IN REGARD TO THE CLERKS WHO HAVE CHARGE OF OUR SUBSCRIPTION DEPARTMENT.

Every little while some of my good friends of former years get a notion in their heads, perhaps quite naturally, that, since their old friend A. I. Root has dropped out somewhat from the active part of our business, things are not attended to as they used to be in the "good old times." Below is a sample of what we get once in a while—not much of a sample, after all, because I do not know that we ever before received any thing quite so "strenuous." I have no scruples about printing it, from the fact that he has particularly requested it, as you will notice.

The A. I. Root Co.:—What is the matter with you? For ten successive weeks I have asked you to change my address as above. GLEANINGS does not come. I got a few stray back numbers that I succeeded in whipping out of you. My former postoffice was Midaghs, Pa. Send me Dec. 15 GLEANINGS at once. I will stoop no longer to your injustice through carelessness. I have wasted postage enough on you. You can return my subscription money, and then I will expose you in the other bee papers as a warning to others. Dear old GLEANINGS! Must it come to this? For twenty-seven years I read its pages; and has it now become the child of inefficiency, so far as I am concerned? Don't go to wriggling, and say you have many satisfied friends. Wasn't I a satisfied friend as long as you treated me right? Make a new resolution on New Year's day, or must it be good by?

Print this, so A. I. can see it.

Bangor, Pa., Dec. 26. JOHN H. JOHNSON.

Of course, the above came right into my hands the minute it was taken out of the mail; and I called a halt among the clerks, and, I was going to say, *demanded*—but I think that is not quite the word—I quietly *asked* for an immediate investigation. Before I tell you what I found, I want to say that common prudence or good sense should have indicated to our irate friend that there was some fault somewhere *besides* with the A. I. Root Co. Just now I glance over the card, and notice that both the first and last names are exceedingly common. I suspect that somebody else of the same name or a similar one has been getting his mail and carelessly kept it. We have had many such troubles in years past. This might account for somebody else getting his GLEANINGS; but how about his letters and postal cards for "ten successive weeks"? I confess this is rather a stunner, and I am almost forced to conclude our friend was so stirred up that he used a little exaggeration. In hunting up all the correspondence from him we find he requested us to change his address as above, Oct. 17, and we did it promptly. No reply was made, because we usually do not answer such letters. But the printed number on every number of GLEANINGS since then shows that the change was promptly and correctly made. Just one other postal card has come to our office. It reads as follows:

The A. I. Root Co.:—This is the third time I write you that you owe me the October 15th GLEANINGS of 1903. Please send me a copy and oblige,

Bangor, Pa., Nov. 24. JOHN H. JOHNSON.

It was received Nov. 27, and the number asked for was promptly mailed.[*] I do not think he succeeded in "whipping" us out of any other back numbers, because no other request had reached us for any of them. Now, friend Johnson, are you not a little rough when you say, "I will stoop no longer," etc.? In regard to exposing us in the other bee-journals, I have not a bit of objection.[†] If there is any thing about our company that needs exposing, let it come out; and even if it is a mistake, I for one do not feel troubled about it. The good book says, "*Blessed* are ye when men shall revile you," etc.—that is, if it is *not so.* If you have been for 27 years a reader of GLEANINGS you are entitled to it for one year free. We are not going to "wriggle" a bit, friend J. It is not like us; it is not our way; but we are going to investigate this whole matter most thoroughly. I want you to carry this to your postmaster; and if he is a good man, as I suppose he is, he will help you to unravel every bit of it; and we are not going to say "good by," by any means. Why, bless your heart, old friend, that would be quarreling with our bread and butter.

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[*] I can not find that the young lady who has charge of our subscription-list was in any way at fault, except that she should have written you, in reply to your postal saying that you had not received the number asked for, and tell you the missing number was promptly mailed. I shall have to admit, perhaps, that the average clerk is not usually quite as ready to investigate such a complaint, and to write to the party, as perhaps A. I. R. himself would be likely to do.

[†] Since the above was written we have something further from friend Johnson. We find our subscription clerk did abbreviate in writing the name of his county. Instead of writing it Northampton she wrote it "North'," which stands just as much for Northumberland as Northampton, and both of those counties are in Pennsylvania. This may have delayed his journal. I did not know that our clerks were doing this, and I just gave orders all over the office not to abbreviate counties to such an extent as to lead to possible confusion, as in this case.

Friend J. says further he suspects that one of our clerks got his complaining cards, and, finding his address had already been changed, "threw the cards into the fire." Let me say to one and all, there are no "fires" in our whole establishment except under the boilers. Our rooms are all heated by steam. Furthermore, postal cards or letters from anybody on *any* subject are *never* put into the waste-basket. Every written communication from any live man, woman, or child, is saved for future reference. Of course, we do not save *printed* letters, or letters that are "make-believe" that they are written by somebody. All these communications are kept on file so we can get hold of them instantly whenever some occurrence like the above demands every scrap of correspondence that can be produced.

Now just a word more for our friends generally. Every little while somebody who does not get his journal gets the foolish idea into his head that we are making money or saving something by keeping back certain numbers after we have received the pay for a whole year. Why, my good friends, of what use is a number of GLEANINGS to *us* if we *should* keep it instead of sending it to you? We count up all our subscribers and then print enough to go around, besides some extra for sample copies. If they do not get into the hands of our readers they are of no use to us at all. We should be clear daft if we did not use every effort to see that every man got his paper. Why, our advertising department alone now brings us about $5000 a year; but our advertisers certainly would not pay us any such money unless our journals got right into the hands of people who value them and read them, advertisements and all. Don't *you see?*

TELLING WHAT THE WEATHER WILL BE ON A CERTAIN DAY FOR A YEAR TO COME, ETC.

Mr. A. I. Root:—I have taken GLEANINGS for quite a few years, and like it very much, but, most of all. Our Homes and Notes of Travel. You always show so much charity for every one, even those who are in the wrong, that I have wondered not a little at the occassional dig you give Hicks, the weather-man, of St. Louis. I have wondered if you ever had one of his almanacs or his paper, *Words and Works*, and kept tab on his predictions and the weather. I have for the last seven or eight years, and must say that he predicts the weather a year ahead better than Cox, the Chicago weather-prophet. Rev. Irl Hicks makes no secret of how he foretells the weather, and any one who knows any thing of astronomy can do his own predicting.

I have taken the liberty of sending for an extra almanac to send to you, and hope you will look at it and see how it corresponds with the weather with you, and I also hope you will not be offended at my doing so, nor at what I have said, as I have not meant to be offensive. CELIA E. THOMA.

Emerald Grove, Rock Co., Wis.

Thanks for your kind words, my good friend, and especially for what you say about charity; and may God help me to exercise that same charity in trying to shed light on this matter of predicting the weather a month ahead or a whole year. Our older readers may smile at what you say about the almanac and *Words and Works*, for the matter has come up repeatedly in years past; and I shall have to tell you that this almanac for 1904 seems like all the rest. It is a mystery to me how anybody can think Hicks has foreknowledge of the weather for all parts of the country. Please consider for a moment that this man assumes to tell in a few brief words what the weather will be all over the *whole United States.* It would be strange indeed if there were not some *spots* or *localities* where his words would seem to fit. As an illustration, all over the North we have had, ever since the middle of November, up to to-day, January 7, the most severe winter weather we have had in twenty years, or perhaps a longer period. There has not been a single night for over two months when it did not freeze, and a good deal of the time it has been below zero. If Hicks had knowledge of what was coming, why did he not say in plain words that the fore part of the winter would be the most severe of any thing known for years past—solid winter without a single let-up—something very remarkable all through our region?

To be sure that I am not selecting special places where he did *not* hit it, we will commence with Jan. 1, 1904.

> *Things to be expected.*—By the 2nd a wave of rising temperature and falling barometer will appear in western sections, cloudiness will quickly gather in the same areas, and storms of first rain and then sleet and snow will pass eastwardly over the country, on and about the 3rd and 4th. Winter thunder storms on and touching the 4th should be no surprise.

Instead of the above prediction we had at this time almost zero weather, or below zero, all over the North. Now, this is nothing particularly surprising. You may say he did not happen to hit it there; but the "things to be expected" that run all through the year 1904 are so carefully worded in a general statement that they may be made to fit a great many kinds of weather. There is hardly a winter that passes that does not have some extreme or other somewhere. Several years ago we had two weeks in January when the ground did not even freeze nights, and soft maples were in bloom. This unusual period of warm weather extended all through the North, and people began to ask the Weather Bureau if something unusual was not going to happen. At that very time I asked why Hicks did not make himself immortal by telling months ahead of this very remarkable and unusual widespread mild weather in the middle of winter. I have searched his almanacs from beginning to end, and I have never found any thing that could be fairly called an allusion to the remarkable extremes. Very likely he *is* a better prophet than Cox, of Chicago; but I can not for the life of me see how intelligent human beings should waste time in giving any such "prophets" any notice at all. Our United States Weather Bureau, that costs a million of dollars a year, or something like it, is leaving no stone unturned to discover any real science about the weather. Then a small army of the best-educated men the world affords are watching the moon, the spots on the sun, etc., and they report regularly to the world that these things have little or no effect on the weather, and yet Mr. Hicks uses page after page, and diagram after diagram, with something that he calls *science*. Now, is the Weather Bureau mistaken, with all the money they have at their command, or is it Mr. Hicks, who stands comparatively alone? The Weather Bureau is valuable to the world because it constantly gives notice two and sometimes three days ahead of all the extremes that may be expected in a *thousand different localities* scattered over the United States.

You say, "Hicks makes no secret of how he foretells the weather;" and, "Any one who know any thing about astronomy can do his own predicting." I would put it this way: "Any one who knows any thing about astronomy should satisfy himself in a few minutes that, while there may be some real astronomy in Hick's almanac, it is mixed up with a mass of nonsense that *looks* like science. Why do not the astronomers of the world—bright educated scientists—give him at least a *little* recognition of some kind? He owns up that the Weather Bureau does not recognize him.

A few years ago there was a great stir about Electropoise, and its vendors published a book that they called "Science," and they tried to make the world believe that their "twaddle" about their new invention was scientific. GLEANINGS waged unceasing war on the humbug. Where is the "humbug toy" (*price $25.00*) with their scientific (?) explanation of it now? I wish some of those who defended it so stoutly would rise up and speak. Now consider wireless telegraphy, X rays, radium, and other *real* scientific discoveries. All the world acknowledges what is claimed for these things. There is not a dissenting voice—certainly not among all our educated scientists. If Mr. Hicks has in like manner made some new discoveries in the realm of science, as he claims, why do not our schools and colleges, and our scientific publications, recognize him?

A little further on, after my quotation from the almanac, he says, "The disturbing causes are Vulcan, Venus near the center of her disturbance, the moon in quadrature, or last quarter, and with extreme south declination." Can anybody call the above either sense or science?

In the last part of the almanac there are a good many excellent half-tone pictures of cyclones, hurricanes, etc., that have carried havoc in different parts of our land. These pictures are furnished *by request*, from different parts of the country. It would be strange indeed if he could not find a disastrous storm of some kind that occurred *somewhere* just after his prediction. The writer who sends the photo usually says, "This storm came just after your prediction," etc. Now, if Hicks had told exactly *where* the tornado would take place, as well as *when*, there might have been some point to it.

ROOT'S SEEDS

We are almost daily in receipt of inquiries similar to these.

"I secured a package of *Prizetaker Onion* seed from Mr. Root last year and was so pleased with it that I intended sending for more this year. Can you send me some of the same?"

"Have you a supply of Root's *Puget Sound* grown very select *Early Jersey Wakefield* cabbage seed? If so, send me by return mail your lowest price per pound."

"Root's *Grand Rapids* lettuce seed is the only lettuce seed that I ever get that every seed comes up when I plant it. Can you furnish the same stock?"

"Would like your seed catalog. I have dealt with Mr. Root for 20 years and meant to keep on. Are you selling seed like his?"

"Will you please send me your catalog? It seems that I can't get seeds anywhere that suit me as well as Root's."

In reply to all such inquiries we state that we shall furnish

ROOT'S SEEDS
AT
ROOT'S PRICES

All of Mr. Root's large contracted orders have been received by us. This means that we are able to fill orders with pure fresh seeds at the lowest price. We have been very fortunate in securing from the same sources as in the past, "Puget Sound" Cabbage and Cauliflower, "Gilt Edge" Grand Rapids Lettuce, and all varieties of Peas, Onions, and Sweet Corn.

Ask for our catalog, or cut out our offer on page 39, of Jan. 1 GLEANINGS, and mail it to us.

E. C. GREEN & SON
MEDINA, OHIO.

50c SEED
DUE BILL
FREE

Send us today, your name and address on a postal and we'll mail you **FREE** our handsome illustrated Seed Catalogue containing **Due Bill** and plan **good for 50c worth of Flowers or Vegetable Seeds FREE.** Your selection to introduce

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100,000 PACKAGES SEEDS FREE on above plan. Write quick. Send names of neighbors who buy seeds. $100 cash for best list. See the catalog.

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Greatest oat of the century. Yielded in 1903 in Ohio 187, in Mich. 231, in Mo. 255, and in N. Dakota 310 bus. per acre. You can beat that record in 1904!

For 10c and this notice

we mail you free lots of farm seed samples and our big catalog, telling all about this oat wonder and thousands of other seeds.

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Cost over $50,000 to publish. If you have a garden you can have a copy for the asking. Send a postal for it to

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200 Marie Strawberry	$1 00	20 Wilder Currants	$1 00
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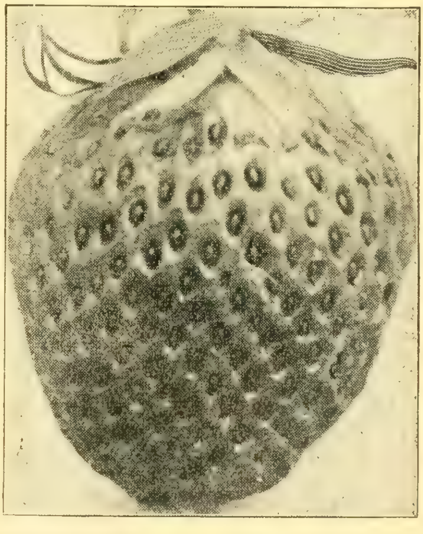
FREE -- GREAT CROPS OF STRAWBERRIES AND HOW TO GROW THEM.



A strawberry book written by the "*Strawberry King*," so called because he discovered the way to develop the fruit organs in a plant and make it grow two big berries where one little one grew before. He grows the biggest crops of the biggest berries ever produced, and the book tells how he does it. It is a treatise on *Plant Physiology* and explains correct principles in fruit-growing. It is worth its weight in gold to any fruit-grower. Will be sent free to all readers of GLEANINGS IN BEE CULTURE. Send your address now. The *Finest Thoroughbred Plants* in the world.

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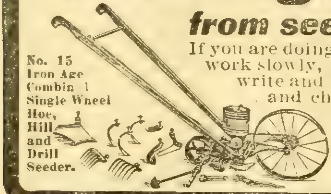
Iron Age Implements

from seed-time to harvest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If you are doing any kind of farm or garden work slowly, painfully and expensively, write and learn how quickly, easily, and cheaply you can do it with the proper Iron Age tools. The new **Iron Age Book** describes them all. **Free.**

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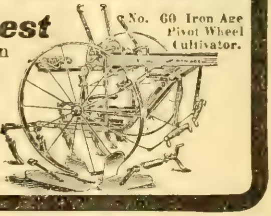
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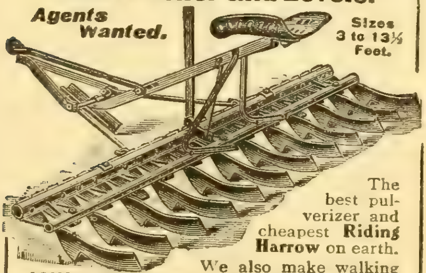
ACME Pulverizing HARROW
Clod Crusher and Leveler

Agents Wanted.

Sizes 3 to 13½ Feet.



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The Pump That Pumps

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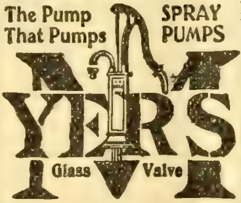

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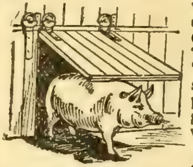

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

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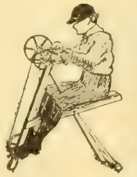

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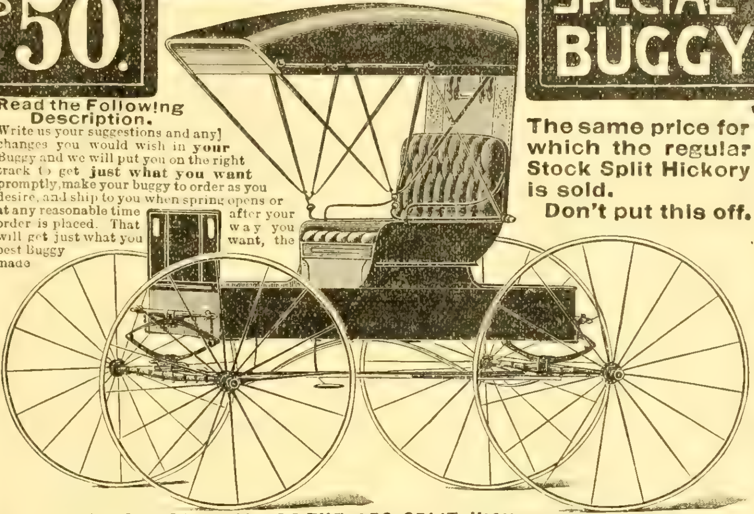
$50.

Read the Following Description.

Write us your suggestions and any changes you would wish in **your** Buggy and we will put you on the right track to get **just what you want** promptly, make your buggy to order as you desire, and ship to you when spring opens or at any reasonable time after your order is placed. That way you will get just what you want, the best Buggy made

The same price for which the regular Stock Split Hickory is sold.

Don't put this off.



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Wheels—Sarven patent, 38 and 42 inches high or higher if wanted. Tire ⅞ inch by ¼ inch thick, round edge. **Axles**—Long distance, dust proof, with cemented axle beds. **Springs**—Oil tempered, graded and graduated, 3 and 4 leaf. Wooden Spring Bar furnished regularly, Bailey Loop if preferred. **Upholstering**—Finest quality 16 oz. imported all wool broadcloth cushion and back. Spring cushion and solid panel spring back. **Top**—Genuine No. 1 enameled leather quarters with heavy waterproof rubber roof and back curtain, lined and reinforced. **Painting**—Wheels, gear wood, body and all wood work carried 100 days in pure oil and lead. 16 coats of paint with the very highest grade of finishing varnish. Gear painted any color desired. Body plain black with or without any striping.

This buggy is furnished complete with good, high padded, patent leather dash, fine quality, full length carpet, side curtains, storm apron, quick shifting shaft couplings, full leathered shafts with 36 inch point leathers, special heel braces and corner braces. Longitudinal Center Spring.

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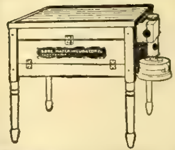

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Welcome sounds—the first faint "peeps" from cracking shells—heard coming from the evenly heated egg chamber of the

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Those sounds mean money profit for the owner. A Sure Hatch starts chicks in life with strong lungs, solid bodies and good constitutions. Our free catalogue C 10 tells how. Write now.

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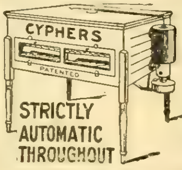

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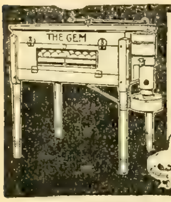

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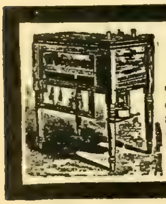

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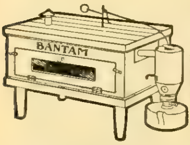

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beats 'em all. One customer writes he obtained 51 chicks from 50 eggs. The Bantam hatches every fertile egg every time. Catalogue proves it—sent free.

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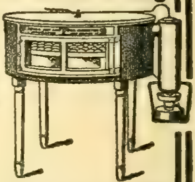

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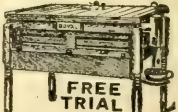

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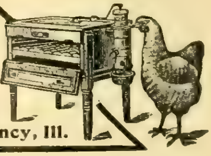

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kills all lice and mites. No injury to birds or feathers. Handles any fowl, smallest chick to largest gobbler. Made in three sizes Pays for itself first season. Also *Lightning Lice Killing Powder, Poultry Bits, Lice Murder, etc.* We secure special low express rates. Catalog mailed free. Write for it.

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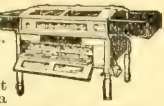

get strong and healthy—gain steadily in weight, are chicks hatched in Reliable Incubators.

The Reliable

provides automatically a constant current of odorless, warm air at a uniform temperature—chicks pip, hatch and thrive under its nature-like conditions. Send 10 cents and get our 20th annual catalog—full of poultry information.

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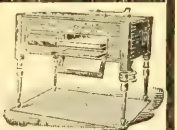

No hazard, no experimenting. You hatch the most and brood the best with

The Successful

Both incubator and brooder have proven their way. Prompt shipment of Eastern orders from our Buffalo house Incubator Catalog free, with Poultry Catalog 10 cts.

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lack sufficient nourishment. Fatten them—make them healthy—feed them **Mrs. Pinkerton's Chick Food.** It prevents bowel trouble. It's all food—easily digested. Write for catalog of prize birds at St. Louis and Chicago 1903 Shows. Gives prices and valuable information.

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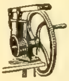
The best by 50 years test, 1000 acres, 40 in hardy roses, including 45,000 of the **famous Crimson Rambler.** 44 greenhouses of **Palms, Ferns, Ficus, Geraniums, Everblooming Roses** and other things too numerous to mention, Seeds, Plants, Roses, Etc., by mail postpaid, safe arrival and satisfaction guaranteed. Elegant 168 page catalogue free. Send for it and see what values we give for a little money, a number of collections of Seeds, Plants, Trees, Etc., offered cheap which will interest you.

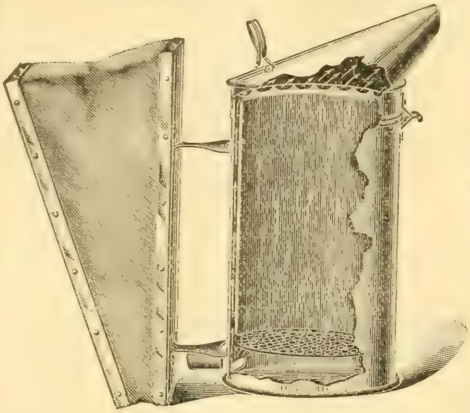
THE STORRS & HARRISON CO.,
Box 142 PAINESVILLE, OHIO.

A THOUSAND DOLLAR EGG

—a touching story of devotion telling how Mandy paid the mortgage and saved the farm. Tells how to make money from poultry. Also Egg record and Calendar for 1904. Mailed free. **Geo. H. Lee Co., Omaha, Neb.**



THE CROWN Bone Cutter for cutting *green bones.* For the poultryman. Best in the world. *Lowest in price.* Send for circular and testimonials. **Wilson Bros., EASTON, PA.**



New Brodbeck Corneil

Double-Blast Smoker.

Patented Oct. 11, 1892.

We have now made arrangements by which we can furnish the Brodbeck patented features in our regular Jumbo 4 inch-barrel smoker. It has an inner barrel, or blast-chamber, in which the fuel is placed so that the fire does not come in contact with the smoker-cup proper. In use the blast in forced against a deflector from which it is then driven between the inner and outer barrel, and also through the grate and fuel. The direct effect of this is to create a double blast—a cold and a hot—to increase the force of the blast, and to prolong the life of the smoker because the outer barrel will be nearly cold. The smoke will not be quite so dense and pungent as in the hot-blast smokers of standard pattern; but there are some who may prefer a stronger blast, even if the smoke is less pungent. Price of the Brodbeck Corneil, 4-inch size, **$1.50**, or postpaid.. **$1.80.**

The A. I. ROOT COMPANY, MEDINA, OHIO.

WAX PROFITS.

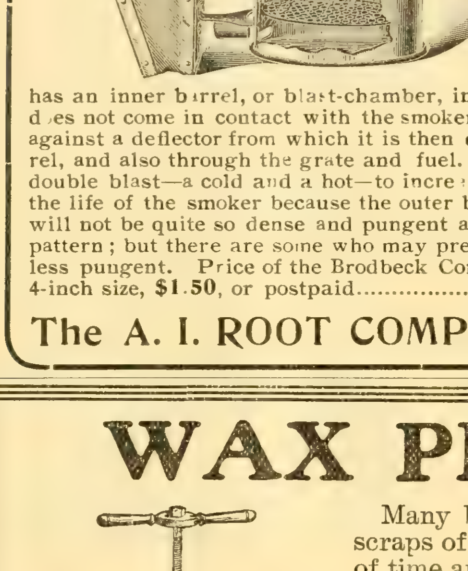


Fig. 169.—The Root-German Steam Wax-press. Price $14.00. Shipping weight, 70 lbs.

Many bee-keepers allow old combs and scraps of beeswax to collect, which, for lack of time and the proper utensils, are scattered or eaten up by moth-worms. A big item would be added to the year's profits by the timely rendering of said wax by an economical process. We believe the press illustrated herewith fills a long-felt want in rendering wax.

B. Walker, Clyde, Ill., says:

> Was inclined to believe at first that the German wax-press was a failure; but after a thorough trial I was well pleased. I secured 30 lbs. more wax from one day's use of the machine than I would have secured by the ordinary method of rendering.

N. E. France, Platteville, Wis., State Inspector of Apiaries, and General Manager National Bee-keepers' Association, says:

> The German wax-press is by far the best machine or process to save wax from old black brood-combs.

Manufactured by

The A. I. ROOT CO., Medina, Ohio, U. S. A.

DON'T WAIT any LONGER to Buy. **Bee Supplies** BIG DISCOUNTS for Orders Now.

Write to us to day and say what you want and get our prices. New Catalog will soon be out. It is free. We also handle
HOOSIER INCUBATORS AND BROODERS.

C. M. Scott & Company,
Dept. G. 1004 E. Wash Street, INDIANAPOLIS, IND.

The Best Bee-goods in the World

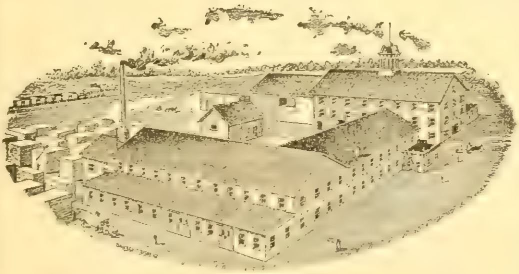
are no better than those we make, and the chances are that they are not so good. If you buy of us

Yon will not be Disappointed. We are undersold by no one.

Send for new catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cts. a year; especially for beginners.

The W. T. Falconer Man'f'g Co.,
Jamestown, N. Y.

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices.
Order of him and save the freight.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

3 per cent Discount during January.

BEE - SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment We want every bee keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
Chas. A. Meyers, Leipsic, Ohio.

PAGE

EVEN THE WIRE,

and mode of construction, are very different. Page Fence is the only woven fence made of Basic, High-Carbon wire stock. That is better.

PAGE WOVEN WIRE FENCE CO, Adrian, Michigan.

FARM LANDS

NET $1528.75 FROM ONE ACRE,

one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.

Handsomely illustrated descriptive booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama, sent free. JOHN W. WHITE,
Seaboard Air Line Railway,
Portsmouth, Va.

Splendid Location for Bee-keepers.

POULTRY JOURNAL How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE.
Inland Poultry Journal, Indianapolis, Ind.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department must not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED—To exchange Italian queens for incubators. Must be in good condition. Let me know what you have.
J. F. MICHAEL,
Rt. No. 1, Winchester, Ind.

WANTED.—To sell or exchange, about 100 hive-bodies, cut to nail up, with slate covers 21 x 17 inches; no metal rabbets. These are a bargain at 40cts. each. Write for particulars.
B. F. AVERILL,
Howardsville, Va.

WANTED.—To exchange pair Morgan horses for honey, bees, or hives.
ELIAS FOX,
Hillsboro, Wis.

WANTED—To exchange 8-frame hives, extractor, and uncapping can, for honey.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Help. Write to me if you want work, as it is likely I can secure you a suitable job
O. SEATON, Princeton, Ill.

WANTED.—Young man to learn bee-keeping. Farmer's son. Opening for the future.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—A partner in the bee business in a territory that will support 5000 colonies; have 900 colonies to start with.
A. B. MARCHANT,
Marchant, Fla.

WANTED.—A position as book keeper; have had some experience in bee-keeping: wages expected, $40 per month. GERNAL SLAWSON, Valparaiso, Ind.
Room 40, Com'l Hall.

WANTED.—A situation with an experienced bee-keeper for the coming season by a young man of some experience. No liquor or tobacco used
R. M. CLARK, Charlotte, Vermont.

WANTED.—A situation as assistant apiarist, or general farm work, by young man of good habits.
R. ABE NUSBAUM, Taneytown, Md.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—The address of all who are still in need of cartons.
QUIRIN-THE-QUEEN BREEDER,
Bellevue, Ohio.

For Sale.

WANTED.—To sell my home, consisting of 8-roomed house, cistern, and running water; barn, 24x36; shop and honey-house, 18x34, and 3 acres of land; together with my bees, underground bee-repository, queen-business, and good will. My best breeding-queens go with the bees. See pp. 295, 935, GLEANINGS for 1903. Will move about 20 rods on old Doolittle homestead, and am willing to help the purchaser a month or so for the first year or two. Reason for selling, overworked. Price $2500.
G. M. DOOLITTLE, Borodino, N. Y.

WANTED.—To sell best type-writer for bee-keepers; practical, handy, low-priced. For exchange, Mann green-bone mill, good as new, cost $16.00. Want 8-frame L. or Dovetailed hives or extracting supers for same; extracting-combs from healthy apiary; double shotgun, 16 gauge.
HARRY LATHROP, Monroe, Wis.

WANTED.—To sell apiarian outfit of 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00 and accessories at one-half list price; combs 20c a square foot.
X Y Z, GLEANINGS.

WANTED—To sell 200 colonies of black and hybrid bees in box and frame hives. Address
E. A. SIMMONS, Fort Deposit, Ala.

FOR SALE.—25 colonies of bees in good condition in 8-frame L. hives. $50 00 takes the lot.
J. L. WOLFENDEN, Evinston, Florida.

FOR SALE.—Ten 1½-story 8-fr. chaff hives complete; also fences and section-holders for 16 I supers.
H. G. LARUE, LaRue, O.

FOR SALE.—A limited amount of ginseng sets.
C. G. MARSH, Kirkwood, Broome Co., N. Y.

FOR SALE.—900 colonies of Italian, Carniolan, and hybrid bees. Will sell all, or one-half interest.
W. L. COGGSHALL,
Groton, N. Y.

FOR SALE.—Three Incubators; fine Black Minorca Cockrels, 75c to $1 each; tumblered honey, 80c per doz. Bargains.
G. ROUTZAHN, Biglerville, Pa.

Walter S. Pouder. Established 1889.

Bee-keepers' Supplies.

Distributor of Root's Goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Co., and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee Smokers, Bee-veils, Pouder Honey-jars,

.........and, in fact, everything used by Bee-keepers........

Headquarters in the West for the Danzenbaker Hive which is so rapidly gaining in popularity among our most successful comb-honey producers. Investigate its merits.

No order too small, and none too large. "Satisfaction guaranteed" goes with every shipment. A pleased customer is the best advertisement that my business has ever had. Remember that it is always a pleasure to respond promptly to any communication pertaining to the bee or honey industry.

Beeswax Wanted.--I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package.

Take Notice.--Finest Comb and Extracted Honey on hand at all times. I handle several carloads during a season, and if your local demand exceeds your supply I can furnish you promptly, and at prices that will justify you in handling it. If interested write for my special price list of honey.

My Illustrated Catalog is mailed free to every applicant. Address your communications to

WALTER S. POUDER,

513-515 Massachusetts Ave., - INDIANAPOLIS, IND.

SPECIAL NOTICE
Special Notices
By Our Business Manager

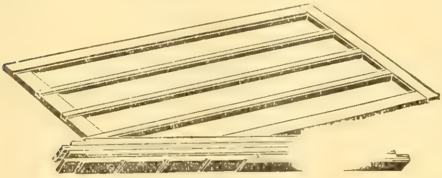
WEED FOUNDATION MADE IN DENVER.

We have just received word from Henry F. Hagen of Denver, Col., who recently installed an outfit of machinery for making foundation by the Weed process, with samples of his work. The samples are a credit to him, and we do not see how they could be improved.

BUSINESS BOOMING.

Orders continue to roll in as fast as we can ship, and we find ourselves about thirty cars behind at the present time, and obliged to turn away some new business offered us. We are shipping five or six cars a week, and doing all we can to keep pace with the orders for carloads. Small orders are shipped promptly.

COLD-FRAMES OR HOT-BED SASH.



We are prepared to furnish sash made of cypress, the very best material for the purpose. They are 1½ inches thick, outside bars 2½ inches wide; center bars 1¼ inches wide, grooved or rabbeted for glass, regularly made for 4 rows of 8-inch glass; outside measure, 3 feet 1½ inches by 6 feet. Price in flat, 80 cts. each; 5 for $3 75; 10 for $7 00; 8x10 glass for same at $2.70 per box; 5-box lots at $2 50; 10 boxes, $2 40 per box. We still have some pine sash, 1⅜ thick, with side bars 3¼ wide, 3 ft. 4 inches x 6 ft., at same price as above.

SWEET CLOVER (YELLOW OR WHITE).

We have on hand a large supply of these clover seeds. Prices as follows:

	1 lb.	10 lbs.	100 lbs.
Sweet Clover, white,........	15	$1.20	$10 00
" " (hulled)....	20	1.70	15.00
" " yellow,...............	20	1.70	15.00

If sent by mail add 10c per lb. to these prices.

MAPLE-SUGAR MAKERS' SUPPLIES.

We are prepared to furnish buckets shipped direct from factory at Toledo, Ohio, or from Western New York Prices on application. Record spouts from here, $1.00 per 100 : $9.00 per 1000; quart cans, at a special price to reduce present stock, $5 50 per 100; $50 per 1000; ½-gallon cans, $8 50 per 100; 1 gallon cans, $10.50 per 100. These are special prices, just for the sugar-making season only, to those ordering from this notice and mentioning the same in the order.

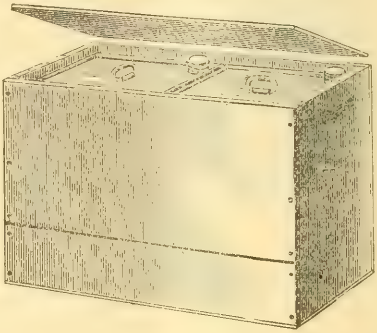
MAPLE SUGAR AND THE SUGAR-BUSH.

If any of our friends are planning to make maple sugar or syrup next spring I think it will pay them to have our little book, which now contains an appendix giving an account of my experience in my little sugar-bush in Michigan last spring With the modern implements that are on the market, it is really a pleasure to work a little sugar-bush In fact, I do not know of any rural occupation that I enjoy more. It is one of the first pieces of outdoor work you can get at in the spring; and if you have a good roof over your boiling-camp, with plenty of dry wood, the disagreeable weather which is likely to occur during sugar-making time is not very much to be dreaded. I am glad to notice one of the latest and best sap spiles made is advertised in this issue. If you are going to enjoy sugar-making you ought to be up to the times, and have the very best tools. The price of the maple-sugar book is only 25 cents; 5 cents extra if sent by mail.—A. I. R.

EXTRACTED HONEY.

We keep on hand a large stock of extracted honey from different sources, and are prepared to supply at the prices shown below. The following flavors are usually in stock.

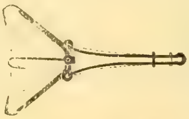
PACKAGES.



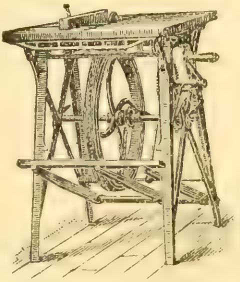
By far the largest part of our honey comes put up in the 60 lb. square tin cans, two cans in a case. We also get some in kegs and barrels. We agree to furnish it only in such packages as we happen to have. Unless you find price quoted for different packages, it is understood that we furnish only in 5-gallon and 1-gallon cans.

PRICES.—F. O. B MEDINA, CHICAGO, OR PHILADELPHIA

Kind.	In single five-gallon cans.	1 case of 2 five-gallon cans.	10 cases of 2 five-gallon cans.	In one-gallon screw-top cans	Case of 6 or 10 one-gallon cans.
	per lb	per lb	per lb	per gal	per gal
White Clover	8½	8	7½	1 20	1 10
Basswood	8½	8	7½	1 20	1 10
Alfalfa	8	7½	7	1 20	1 10
Orange	7	6½	6	1 10	1 00
Amber.........	6½	8	5½	1 00	90



No Fish can Escape
this hook. Sent anywhere for 10 cents. When you order ask for our CATALOGUE. It contains the best and very latest useful novelties offered the public.
ECLECTIC SUPPLY CO.,
90 W. Broadway, New York.



BARNES'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw which is made for bee-keeper's use in the construction of their hives sections, boxes, etc., etc.
Machines on Trial.
Send for illustrated catalog and prices. Address
W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford. : Illinois

WANTED.—An experienced man to work with bees.
CHEEK & WALLINGER, Las Animas, Colo.

WANTED.—A Barnes machine with cutterheads, to cut from $\frac{1}{16}$ inch to 1½ in.; two 12-in. saws. 1 rip, 1 cut-off. G. C. CARTER, Freshwater, Va.

1884 1904

Twenty Years

Of experience in the manufacture of Hives and Supplies, and a little longer in Queen-rearing, with good facilities, will enable us to fill your orders with satisfaction and promptness. :: Let us send you our 64-page Catalog. . . .

J. M. JENKINS,

WETUMPKA, = = ALABAMA.

3 Per Cent Discount
During the Month of January

Send for our 1904 catalogue and price list. Our hives are perfect workmanship and material.

Take Advantage of Early Discounts

and send your orders in NOW. By so doing you SAVE MONEY AND SECURE PROMPT SHIPMENTS

Page & Lyon Mfg. Co.
New London, Wisconsin, U. S. A.

Dittmer's Foundation
RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the **Cleanest and Purest,** and in all respects the best and most desirable. Send for samples. Working wax into foundation, for cash, a specialty.

Beeswax always wanted at **Highest Price.**

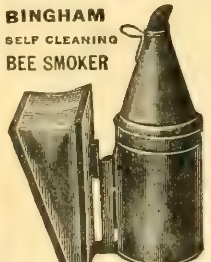
A Full Line of Supplies, Retail and Wholesale.

Send at once for catalog, with prices and discounts.

E. Grainger & Co., Toronto, Ont., sole agents for Canada.

GUS. DITTMER, Augusta, Wisconsin

ORIGINAL PATENT BINGHAM SMOKERS.



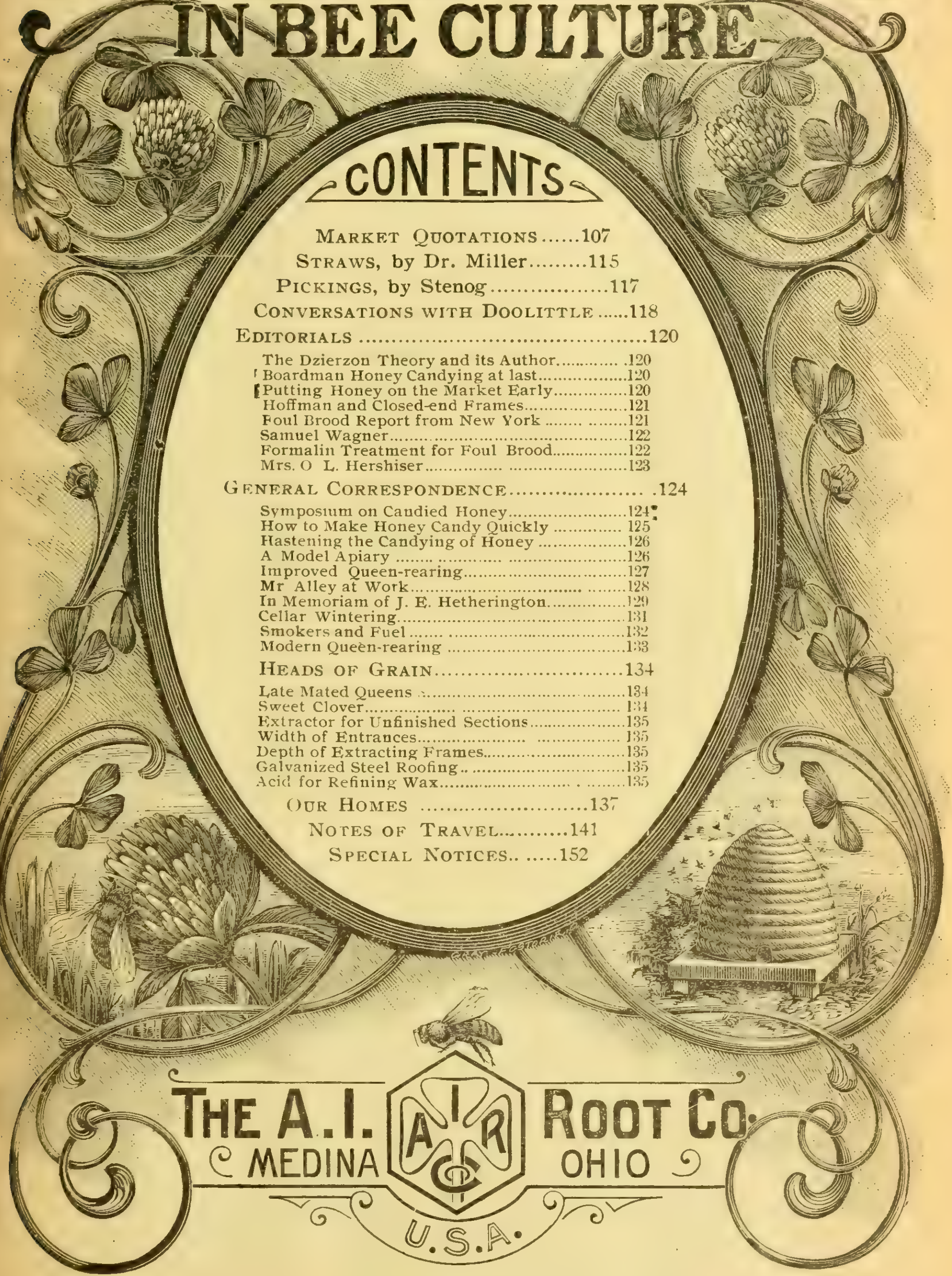
4-inch heavy tin Smoke Engine, 381 holes in steel fire-grate, postpaid	$1 50
3½-inch Doctor, 286 holes in grate	1 10
3-inch Conqueror, 220 holes in grate	1 00
2½-inch Large, 170 holes in grate	90
2-inch Wonder, 110 holes in grate	65
4-inch heavy Copper, 381 holes in grate	2 00

Twenty-five years the only patents granted, most improved, standard, and best in the world. *Never a complaint.* All have shields, bent cup, and coil-wire handles. Never go out, or throw sparks or soot. Bingham Smokers are not like other smokers. I would like to show you the many letters I have, but will summarize them below: "Don't see how they could be improved;" "Best I ever used;" "Perfect satisfaction;" "Perfection itself." The latest unadvertised patent, dated 1903, sent by the inventor on receipt of 10c above regular prices of the 3 larger sizes of smokers.

T. F. BINGHAM, FARWELL, MICH.

Volume XXXII. FEBRUARY 1, 1904. Number 3

GLEANINGS
IN BEE CULTURE



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THE A. I. ROOT Co.
MEDINA OHIO
U.S.A.

Eastern Edition.

Entered at the Postoffice at Medina, Ohio, as Second-class Matter

MICHIGAN

We are Jobbers of Bee-keepers' Supplies in this State, representing

The G. B. Lewis Co.,
and Dadant & Son.

WHOLESALE
and RETAIL.

Several carloads continuously on hand. Send for our 40-page illustrated catalog.

Lewis C. & A. G. Woodman
Grand Rapids, - Mich.

FOUR CARLOADS

NOW IN STORAGE
AWAITING YOUR ORDERS

Consisting of a full line of

STANDARD GOODS

Danzenbaker Hives, Root's Dov'd Hives, Root's Chaff Hives, Hilton Chaff Hives, Hilton T-Supers, Cowan Extractors, Corneil Smokers, The Doolittle Wax-extractors, and Alley Traps, etc., etc.

As well as Weed Foundation, Section Boxes, Section-presses, Enamel-cloth, Brushes, Honey-boards, Tin Rabbits, Taps for cutting-screw-holes, and Manum Swarm-catchers.

Write for descriptive matter regarding Hilton Chaff Hives and T-supers, with prices on the number you think of purchasing.

36-PAGE CATALOG FREE

GEO. F. HILTON, Fremont, Mich.

The Danzenbaker Hive

The Comb-honey Hive.

Root's Good's sold in Michigan by M. H HUNT & SON. Send for Catalog.

THREE POINTS OF EXCELLENCE:

Quality--You can produce better-looking honey.

Quantity--You can produce more of it.

Price--You can get more per pound for it.

The Danz. Book of "FACTS ABOUT BEES" tells all about it, and what successful bee-keepers say in favor of it. We want to send it to you.

Please send to my address Danzenbaker's "Facts About Bees," telling about the Danzenbaker hive.

Name..

Address..

The Danz. Hive--Sold in Michigan by

M. H. HUNT & SON,
Bell Branch, - Mich.

Headquarters for

BEE-SUPPLIES.

Root's Goods at Root's Factory Prices.

Large, complete stock now ready; liberal discount on early orders; insure you prompt service and lowest freight rates. Give me your orders and you will save money. Catalog free----send for same.

SEEDS OF DIFFERENT HONEY-PLANTS.

Let me book your order for QUEENS (see catalog, page 29) as stock for early orders is limited. NUCLEI ready to supply, beginning June.

C. H. W. WEBER,

Office and Salesroom, 2146 and 2148 Central Ave.
Warehouse, Freeman and Central Aves.

CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

TORONTO.—The demand for honey is not very brisk. Prices are much the same In some cases it has been offered a little lower than it was earlier in the season, owing to the fact that some who have held back are now getting anxious to dispose of their crop. Retailers who usually get a stock in the fall are getting it pretty well disposed of, and there should be a pretty fair demand for it between now and the time maple syrup comes in. First class clover and basswood in wholesale lots, 6@7c. Comb honey remains unchanged, being from $1.50 to $2.00 per dozen, according to quality.
E. GRAINGER & Co,
Jan. 19. Toronto.

KANSAS CITY.—Instead of our honey market improving, it has grown worse so far as comb is concerned. The receipts have increased, and fancy comb and No. 1 have been sold as low as $2.50 per case of 24 sections. We do not look for any improvement in prices before February, if then. We quote fancy, white comb, 24-section cases, $2.60; No. 1, comb, 24-section cases, $2 50; No. 2, comb, 24-section cases, $2 40. Extracted, white, per lb., 7@8½; amber, 6@6½. Beeswax, 25@28.
C. C. CLEMONS & Co.,
Jan. 14. Kansas City, Mo.

MILWAUKEE.—There has not been much change of the situation as regards this market on honey. The receipts are small, the offerings are fair, the supply here is liberal, and the quality very good. The demand is not very urgent, and not as good as we desire for the comfort of our shippers, but we expect that time will solve the problem and consumers will do their work; and we will do our part and shippers do their part in awaiting results, and the work will be done. We continue to quote fancy, 13@14; No. 1, 12@12½; dark, out of condition or medium grade nominal. Extracted in barrels, cans, and pails, white, 6½@8; dark, 6@7½. Beeswax, 28@30.
A. V. BISHOP & Co.,
Jan. 14. 119 Buffalo St., Milwaukee, Wis.

BOSTON.—There is but little new to note in our honey market. Stocks are ample, and prices as follows: Fancy white, 16; A No. 1, 15; No. 1, 14. Extracted, 6 to 8, according to quality.
BLAKE, SCOTT & LEE,
Jan. 18. Boston, Mass.

SCHENECTADY. — Market continues dull for both comb and extracted, with very little demand. We look for an improvement in extracted soon. No change in prices, which are nominal at present.
Jan. 18. CHAS. MCCULLOCH,
Schenectady, N. Y.

SAN FRANCISCO.—Honey, new comb, white, 12@14c; amber, 10@12; extracted, water white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Beeswax 26@28.
ERNEST B. SCHAEFFLE,
Jan. 12. Murphys, Cal.

CINCINNATI.—The demand for honey shows little life at the present time. Have an ample supply although we are looking for a revival of trade in the near future Prices are declining owing to the superfluous quantity in this country. We are selling amber extracted in barrels at 5¼@6; white clover, 6½@8, according to quality. Fancy comb honey selling slow at 14@15. Beeswax, good demand at 30c
THE FRED W. MUTH CO.,
Jan. 25. 51 Walnut St., Cincinnati, O.

DENVER. — No. 1 white comb honey, $2 50@$2.75; extracted, white, 7½@7¾; extracted, light amber, 6¾@7¼; light amber comb, $2.25@$2 50. Beeswax wanted at 26c to 30c, according to color and cleanliness.
THE COLO. HONEY PRODUCERS' ASS'N.
Jan. 22. 1440 Market St., Denver, Colo.

SAN FRANCISCO.—Honey, new comb white, 10@12; amber, 8@10; extracted, water white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Bee-wax 26@28. Trading in honey is light and mostly of a jobbing order.
ERNEST SCHAEFFLE, Murphys, Cal.

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.
G. W. WILSON, R. R. No. 1, Viola, Wis.

FOR SALE.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—5000 lbs. of fine comb and extracted honey, mostly all comb. L. WERNER,
Box 387. Edwardsville, Ill.

FOR SALE.—Fancy basswood and white-clover honey; 60 lb cans, 8c; 2 cans or more, 7½c; bbls, 7½c.
E. R. PAHL & Co., 294 Broadway, Milwaukee, Wis.

FOR SALE.—5000 lbs. best pure clover honey, in barrels and 60-lb. cans, at 6¾c and 7 c per lb.; 6¾ c for the lot. F. B. CAVANAGH, McBain, Mich.

FOR SALE.—Fine extracted honey for table use, in 60-lb. cans. Price for white, single can, 7½c; two or more, 7c. Amber, one cent less.
C. H. STORDOCK, Durand, Ills.

WANTED.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us. EVANS & TURNER,
Columbus, Ohio.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & Co., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED — To pay cash for comb and extracted honey. State kind with best prices
L. H. ROBEY, Worthington, W. Va.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.
THOS. C. STANLEY & SON,
Fairfield, Ill., or Manzanola, Colo.

WANTED—Beeswax. We are paying 28 cents or 30 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E Erie St. Chicago, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price. THE A. I. ROOT COMPANY, Medina, O.

Chas. Israel & Brothers
486-490 Canal St., New York.
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

STRAWBERRY PLANTS
and Seed Potatoes.

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STRAWBERRIES

You can make more money if you plant intelligently. Write and tell us about your soil. We'll send you our FREE DESCRIPTIVE BOOK. over 100 varieties.

FLANSBURGH & PEIRSON,
Leslie, Mich.

PEACH TREES General assortment, $2 to $3 per 100. Also plum, pear, and cherry trees. Circular free. R. S. JOHNSTON, Box 43, Stockley, Del.

Squab Book Free

Squabs are raised in 1 month, bring *big prices*. Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into*. Send for our **Free Book,** "How to Make Money With Squabs," and learn this rich industry. Address
PLYMOUTH ROCK SQUAB CO.,
19 Friend St., Boston, Mass.

FARM LANDS

NET $1528.75 FROM ONE ACRE, one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.

Handsomely illustrated descriptive booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama, sent free. JOHN W. WHITE,
Seaboard Air Line Railway,
Portsmouth, Va.

Splendid Location for Bee-keepers.

FOR SALE.—90 colonies of bees in Heddon hives, wired frames. Fixtures at reasonable price. $4.00 per colony. J. J. OWENS, Box 242, Waterloo, Iowa.

FOR SALE.—Melilotus seed, $2.50 per bushel; 2 oz. pkg., 10c. W. P. SMITH, Penn, Lowndes Co., Miss.

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.

WE OUTGREW OUR OLD QUARTERS!

The growing demands of a RAPIDLY INCREASING BUSINESS have moved us. We are now located at

51 WALNUT STREET.

We have increased facilities, and a new, well-supplied up-to-date stock. Every thing that bee-keepers need and demand. **The Best Bee Supplies in America.** Special discount for early orders. Send for catalog. Queen bees and nuclei in season.

THE FRED W. MUTH CO., 51 Walnut St., Cincinnati, O.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., Medina, Ohio.

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E. R. ROOT, Editor of Apicultural Dep't.
J. T. CALVERT, Bus. Mgr.
A. L. BOYDEN, Sec.

F. J. ROOT, Eastern Advertising Representative,
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Terms: $1.00 per annum ; two years, $1.50 ; three years, $2.00 ; five years, $3.00, *in advance.* The terms apply to the United States, Canada, and Mexico. To all other countries, 48 cents per year for postage.

Discontinuances: The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once ; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

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Column width, 2⅜ inches. Column length, 8 inches.
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250 lines@	18	6 times	10 per cent
500 lines@	16	12 "	20 "
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2 pages	70 00	4 pages	120 00

Preferred position, 25 per cent additional.
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Circulation Average for 1903, 18,666.

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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C. C. MILLER, Marengo, Illinois.

CONVENTION NOTICES.

The Michigan State Bee-keepers' Association will hold its annual convention, Thursday and Friday, Feb. 25 and 26, at the Agricultural College. The Michigan State Dairymen's convention will meet at the same place, Tuesday, Wednesday, and Thursday, and the round-up institute of the farmers' institutes will be held at the same place from Feb 23 to 26. One session of the dairymen's convention will be a joint session with the institute, and one session of the bee-keepers' convention will be a joint session with the institute. There will be half fare on all Michigan railroads. Dinner and supper can be secured at the College; but visitors will have to go to Lansing for breakfast and lodging. There is an electric line that takes passengers from the College to Lansing for five cents.

W. Z. HUTCHINSON.

Our Advertisers and Advertising.

Experienced operators of incubators often deplore the fact that incubators have so little room for the chicks underneath the egg-tray Then again a few machines have considerable room in this space but the chick-tray is so constructed that it is extremely unpleasant and difficult to thoroughly clean and disinfect the inside after the hatch is over. Many incubator users unite in deciding that the Gem Incubator fulfills the necessary conditions The removable chick-tray is one of the exclusive features of the Gem Incubator, and commends itself to every thinking poultry-raiser.

There are other points of superiority about the Gem that would be interesting to mention, which are taken up in detail in the handsome new catalogue. This catalogue is free. Write to the Gem Incubator Company, Box 53, Dayton, Ohio.

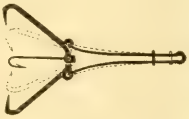
My ad. (in the Honey Column) has been very serviceable to me, for out of a crop of 64 lbs. of honey I have only 12 remaining unsold.

EMIL J. BAXTER, Nauvoo, Ills.

San Francisco, California

Season 1904. Root's Sections, Specialties, Sundries, Danzenbaker Hives, etc , in stock (here exclusively) Jan. 15 for prompt shipment, at prices lower than can be had by dealing direct. Send your orders to us. Also Dadant & Son's Foundation, best Dovetailed Hives on the market, 8 and 10 frame, regulation pattern and furniture. Special prices on quantity orders.

SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California, U. S. A.



No Fish can Escape this hook. Sent anywhere for 10 cents. When you order ask for our CATALOGUE. It contains the best and very latest useful novelties offered the public.

ECLECTIC SUPPLY CO.,
90 W. Broadway, New York.

Attention! Bee-Keepers!

I have secured the photographic outfit and plates of our late friend Mr. J. H. Martin, the "Rambler," and am prepared to furnish unmounted prints of views taken by him, at 25c each, or $2.75 per doz. Enclose 2c stamp for list of views in stock.

CLAUDE S HILL, Campo Florido, Cuba.

HUDSON RIVER
Bee-Keepers' Supply Co.
43 Smith St., Newburgh, N. Y.
W. B. VAUGHAN, Prop

E. E. Lawrence (Box G 28), Doniphan, Mo.
Breeder of Fine Italian
QUEEN BEES. Send for Price List.
Local Agents for Root's Goods.

I. J. Stringham, New York,

keeps in stock several car-loads of Apiarian Supplies of the latest patterns, and would be pleased to mail you his 1904 catalog. Bees in season.

Apiaries, Glen Cove, L. I. Sales Rooms, 105 Park Pl., New York.

QUEENS! ATTENTION! QUEENS!

During 1904 we will raise and offer you our best queens. Untested, $1.00 each; $5.00 for 6; $9.00 for 12. Tested queens, $1.50 each; best breeders, $5 00 each. One. two, and three frame nuclei a specialty. Full colonies, and bees by the car-load. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy-Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18 Beeville, Tex.**

Tennessee Queens.

Daughters of select imported Italians select long-tongue (Moore's), and select golden, bred 3¼ miles apart, and mated to select drones. No impure bees within three and but few within five miles. No disease. 31 years' experience. All mismated queens replaced free. Circular free. Safe arrival guaranteed.

John M. Davis, Spring Hill, Tenn.

	Price before July 1st			After July 1st.		
	1	6	12	1	6	12
Untested	$ 75	4 00	7 50	$ 60	3 25	6 00
Select	1 00	5 00	9 00	75	4 25	8 00
Tested	1 50	8 00	15 00	1 25	6 5	12 00
Select tested	2 00	10 00	18 00	1 50	8 00	15 00

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 88 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

Try Case Strain.

They make the whitest comb honey; have proved best for extracted especially in Cuba; are but little inclined to swarm. Queens are carefully bred by experts. Two firms have bought 900 each for their own yards. Our reputation is second to none. We mean to keep it up. We are planning better queens, earlier and more of them, for 1904.

Circular for the asking. **J. B. CASE, Port Orange, Florida.**

Bees and Queens.

A full line of Bee-Keepers' Supplies always on hand, including Root's hives, sections, and Weed Process Foundation. **Bees and Queens in their Season.** Catalog free.

W. W. CARY & SON, Lyonsville, Mass.

HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1904. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, $1.25; five for $5 00. Breeders of either race, $3.00 each.

W. H. Laws, Beeville, Texas.

Geo. J. Vande Vord

Queen-breeder. **Daytonia, Fla.**

Folding Cartons.

Already printed at $4.00 per M, so long as our present stock lasts.

Our Queen Circular is now ready to mail.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

10 WEEKS FOR 10 CENTS

We have some extra copies of the **Weekly American Bee Journal** left over from the latter part of 1903. We will mail 10 of these numbers for 10 cents (in stamps or silver). They are fully equal to a year's subscription to most of the monthly bee-papers that are published—and for only 10 cents. If you are not acquainted with the American Bee Journal, this is a fine chance to familiarize yourself with it.

* * *

DR. MILLER'S

40 Years Among the Bees

* * *

This book has had an increased sale lately. It contains 328 pages, bound in cloth. Dr. Miller's crop was **18,000 pounds of Comb Honey last year.** In his book he tells just **HOW** he manages his bees. **YOU** will want to know **his successful way.** In fact, every bee-keeper should own and read Dr. Miller's book. Price, postpaid, $1.00. Or, with the Weekly American Bee Journal one year—both for $1.75.

Address the publishers,

GEORGE W. YORK & CO.,

144 & 146 E. Erie St., CHICAGO, ILL.

Advanced Bee Culture

FREE!

ADVANCED BEE CULTURE is a book of nearly 100 pages (the size of the Review) that I wrote and published in 1891; and I will tell you how I gathered the information that it contains. For 15 years I was a practical bee-keeper, producing tons of both comb and extracted honey; rearing and selling thousands of queens, reading all of the bee books and journals, attending all the conventions and fairs, visiting bee-keepers, etc., etc. Then I began publishing the Review, and, for several years, each issue was devoted to the discussion of some special topic, the best bee-keepers of the country giving their views and experience. ADVANCED BEE CULTURE is really the summing up of these first few years of special-topic numbers of the Review; that is, from a most careful examination of the views of the most progressive men, and a thorough consideration of the same in the light of my experience as a bee-keeper, I have described in plain and simple language what I believe to be the most advanced methods of managing an apiary, for *profit*, from the beginning of the season through the entire year.

A new and revised edition, which includes the improvements of the past ten years, was gotten out a little more than a year ago; and is as handsome a little book as ever was printed. The paper is heavy, extra machine finished, white book, and there are several color plates printed on heavy enameled paper. For instance, the one showing a comb badly affected with foul brood is printed in almost the exact color of an old comb. The cover is enameled azure, printed in three colors.

The price of the book is 50 cts., and I have always clubbed it with the Review at $1.25 for both; but, just at present, I am putting forth extra efforts in pushing the subscription list of the Review away up above where it has ever been before, and, as an inducement in this direction, to get the Review into new hands, I will, for the next month, send a copy of ADVANCED BEE CULTURE free to any one not now a subscriber, who will send me $1.00 for the Review for 1904. I can also send the Dec., 1903, issue free to those who care for it, but all of the other issues for 1903 have been sent out.

W. Z. HUTCHINSON,
Flint, Mich.

Your Feeble Old Wagon

has many years' service in it. Replace its shaky wheels with

ELECTRIC Metal Wheels.

Made to fit any skein. Straight or staggered oval steel spokes, cast in the hub, hot riveted in the tire. Broad tires save rutting and draft. Any height desired. Write for free catalogue for particulars.

ELECTRIC WHEEL CO., BOX 95, QUINCY, ILLINOIS.

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of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

SWEET-POTATO SEED

Sound, bright stock; most popular varieties. Send for descriptive price list. :-: :-:

L. H. Mahan, Box 143 **Terre Haute, Ind.**

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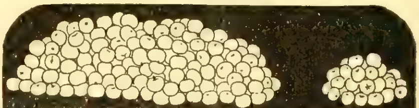
farmers write us and say that they have used PAGE Fence for 15 years, and it is still in service.

PAGE WOVEN WIRE FENCE CO., Adrian, Michigan.



Actual Results

of the advantages of spraying are shown in above picture. The two piles of apples came from the same number of trees in the same orchard row. The big pile from sprayed trees. Pictures taken from actual photographs.

The Best Spraying Pumps

bucket, knapsack, barrel, hand and power, are made by the undersigned, inventors and sale owners of many new valuable spraying fixtures and features. Write for free catalogue and booklet on insects, plant and fruit diseases.

THE DEMING CO., SALEM, O.

Be Up-to-Date.

Use neatly printed stationery. Envelopes, letter heads, note heads, bill heads or statements. 250 of either, $1.00; 1000, by express, $2.00. Tell your wants and we will quote you prices. Samples free.

YOUNG BROTHERS, Printers, Girard, Pa.

Our New Catalog is Now Ready.

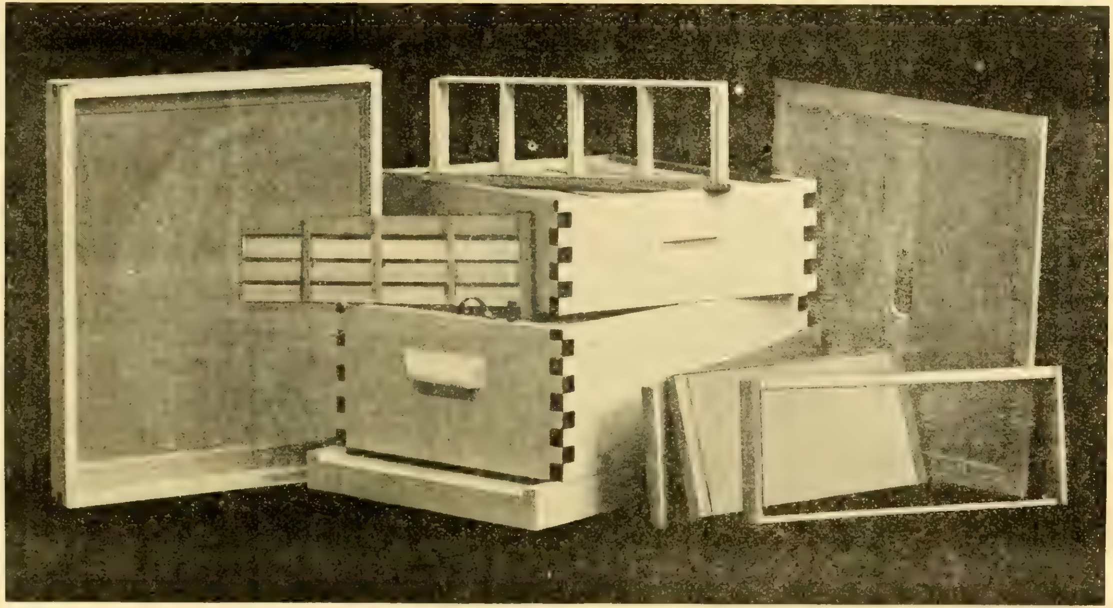
In addition to a complete line of Bee-keepers' Supplies, and several styles of hives it also lists

OUR NEW ACME HIVE.

Simple

Durable

Cheap.



No Fancy
OR
Complicated
Devices.

The Shallow-body Style, with Super for 4x5x1⅜. No Bee-way Sections.

Complete list of Agencies will be found in our Catalog. *Three per cent. Cash Discount during January.*

C. B. LEWIS CO., Manufacturers, - Watertown, Wisconsin, U. S. A.

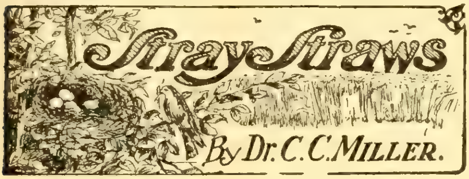
GLEANINGS IN BEE CULTURE

A Journal Devoted To Bees And Honey And Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.
$1.00 per Year Medina, Ohio

Vol. XXXII. FEB. 1, 1904. No. 3



Stray Straws

By Dr. C. C. Miller.

HUBER, page 72, raises a question that makes me think he might be suited with Arthur C. Miller's cover made of cheap lumber combined with cloth, paint, and *paste*. I believe it's a good cover.

E. D. TOWNSEND says in *Review* that, when a man talks about increasing his yield by stimulative feeding and spreading brood, it shows his location is not properly stocked. "Just add a few more colonies, and the result will be the same."

I THOUGHT I had reached the limit of simplicity in my hive-stands. E. F. Atwater describes his in *Review*, and I must confess he has gone beyond me, and, what's more, I think his are better—just a plain rim of 1×4 fencing, large enough for two hives.

A. I. ROOT takes up a page or so talking about automobiles, and is evidently a little disturbed because it may be thought out of place in GLEANINGS. Don't you worry, Bro. Root. Not one in a thousand of your readers has an auto, but a whole lot of us are looking forward to the time when they will be so improved in performance, and so lowered in price, that we can no longer afford to keep horses. Give us all the encouragement you can.

MORE THAN ONCE I've seen the North American spoken of as the largest organized association of bee-keepers in the world. I think more than one beats it. Only yesterday I was reading in an Austrian journal about their association nearing 8000. [Just after that editorial had gone to press I recalled to mind that there are organizations in Germany that probably have a larger membership; but somehow we do not hear about their kicking up very much dust.—ED.]

DER DEUTSCHE IMKER AUS BOEHMEN contains the statement that there are in Germany 20 manufactories of artificial honey, and a single one of them sells three times as much as the natural honey of all Germany! Is it as bad as that in this Yankee-tricky country? [It seems to me our esteemed cotemporary must be exaggerating. Such statements sound a good deal like the old Wiley lie of years gone by. Certainly it is not as bad in this land of Yankee trickery. —ED.]

MADAME SALLEROI is the name of a geranium in common use for borders. I never saw any flowers on it, but the foliage is beautiful—green and white. Sometimes there will be a branch whose leaves are all pure white. Years ago I thought it would be a nice thing to have a plant all white. Attempts to root a white slip always ended in failure. To make a sure thing of it, I took an established plant with a strong root, and broke away all branches with any green, leaving the one branch that had only white leaves. It died, root and branch. The leaves couldn't support the root without having in them that green thing talked about on page 77 — *chlorophyll.* [See reference to "avocation" in footnote to the last Straw in this issue.—ED.]

DZIERZON, notwithstanding his burden of 93 years, is keenly alive to what is going on in the apicultural world. In the January *Bienen-Vater* he seems to chuckle over the black eye given to Gerstung's theory, that food for larvæ of different ages is prepared by nurses of corresponding ages, and that, as soon as a nurse-bee becomes a fielder, it has no longer the ability to prepare larval food. Word was given to all the Swiss experiment stations by President Kramer to establish colonies containing field-bees only. These old bees nursed brood, secreted wax, built combs, and behaved as in normal colonies. [Somehow I have great respect for one who, at 93, seems to be in possession of all the mental powers that characterized him in his younger days; for be it remembered that Dzierzon is the Langstroth of Germany.—ED.]

"Where one knows how to manage," Geo. W. Phillips says, one needn't imprison nuclei to make 'em stay, p. 79. Please tell us so we shall know how to manage. There's some good stuff on page 80. [Mr. Phillips has gone to school, and so is not here to answer your question; but from what I know of his methods I think he meant the giving of hatching brood, and a larger proportion of *young* bees to the nucleus, to avoid the nuisance of confining a few days. The methods described by Mr. Phillips are those that have been tested over and over again, season after season, in comparison with other methods, so that we believe one will not go very far astray if he follows us implicitly. Rearing thousands of queens, as we do, we feel that we can speak with some authority.—Ed.]

"It is just as easy to produce sections averaging 16 ounces as those that average 14¾ ounces," p. 65. True for you, Mr. Editor, for one is just as impossible as the other. Seasons differ, localities differ, colonies differ; and with exactly the same management on the part of the bee-keeper there is no certainty of having them twice alike. [You are too mathematically precise in construing the statement. It is well known that a 1$\frac{15}{16}$ beeway section will come very near a pound, but not quite, on the average. The two-inch will reach it, some sections being a little over and some a little under a pound. What I meant to say was, it is just as easy to produce a section of honey weighing approximately a pound as one that always runs short of it. Of course, I understand that the management, season, and bees may change these averages somewhat.—Ed.]

I wonder, now, I wonder, if there isn't some mistake, p. 64, where the editor thinks he saw my double covers slightly warped and checked, and A. C. Miller says they twist badly. Seems to me I ought to have noticed it. Remember, there are two thin boards or series of boards with grain running in opposite directions. If nailed firmly together, how can one warp without making the other warp the wrong way of the grain? [No, I do not think I was mistaken. If you will remind me the next time I visit you, and let me look over your covers, I think I can show you quite a number of them that are slightly warped and checked. Of course, A. C. Miller had not seen those particular covers that you have; but he has seen and tested the modified Miller covers, such as we have been selling. We use the very same principle in that the grain of one set of boards runs across the grain of the lower set, the whole being nailed and cleated together so that the warping and twisting tendencies are corrected as much as possible.—Ed.]

When I asked, p. 73, "Why is it that in Cuba the honey harvest is in winter instead of summer?" there was no joke about it. I was (and am) ignorant, asking for light. F. L. Craycraft says, p. 17, "We are now at a date when a half of the crop should be harvested," and his letter is dated Dec. 21. I might think there was some mistake in that date; but immediately after him comes W. W. Somerford, who says bees are starving "right now during the time of harvest," and his date is Dec. 15. To clinch the matter he speaks of "the commencement of the honey-flow in October," and says, "the flow is over with March." If Cuba were in south latitude I could understand it; but it's 20 degrees north of the equator. The Gulf Stream does some queer things; has it any thing to do in the case? [In Cuba there are no frosts. It is a land of perpetual flowers. In summer it is too hot. In fall and winter it is just right for the best secretion of nectar. In Arizona the bee-keepers told me that nectar was not secreted nearly as fast on the hottest days as in more moderate weather. To answer your question directly, the Gulf Stream or some other influence has so tempered the climate that the calendar months have nothing to do with the honey-flow.—Ed.]

Evidently you do not yet understand me, Mr. Editor, from what you say, p. 65. I do not think there is any thing wrong in producing or selling sections underweight, overweight, or any other weight. I don't think it's any worse "to buy or sell sections by the piece than to buy or sell eggs by the dozen." I think it is wrong to sell a light-weight section with the understanding on the part of the customer that he is getting a full pound. In all this you and I exactly agree. Here's where we differ: You think that consumers always understand, when buying light-weights, that they *are* light-weights. I think they sometimes buy them with the understanding that they are full-weights. I don't suppose there's as much of this as there formerly was, for in time consumers must learn what's what. But I think that the case I put, p. 996, shows that some of it is still left. When a grocer will not pay as much for 12 pounds of full-weight sections as for 11 pounds of light-weights, I'm afraid he expects and *intends* that at least some of his customers shall be deceived. I shall be glad to agree with you if you can explain the transaction so that it shall appear entirely honest. [I do not think we disagree very much, doctor, except that you appear to have the impression that many retailers sell by the piece with the *intent* to deceive. The full-pound section has been on the market so many years that the public must be very dull indeed if it thinks it is getting an even pound of honey when it buys a section for so much money. The original intention was to make a section that would weigh approximately a pound; but in practice it did not do so. The 1⅞ and 1$\frac{15}{16}$ 4¼ beeway sections were supposed at one time to do this; but we know that in actual practice they fell short. To remedy the difficulty by making the section full two inches wide only aggravates an evil that already exists

—that of making the cells too deep. In practice the bees seem to prefer a comb somewhat thinner for storage; but just how much thinner I will not attempt to say. The tendency at the present time is to make something weighing 14 ounces or less in order to get thinner combs—to make shallower cells in order to get better and quicker filling. Departing, as we have, from the exact pound weight for so long a time it is perfectly legitimate *now* to sell by the piece, just as we sell eggs by the dozen.

There can be no difference of opinion in regard to the grocer mentioned in your next to the last sentence. If he *intends* to deceive, then there is something "rotten" in his heart.—Ed.]

A JOKE on the editor of *Review* is a little too good to keep. He heads an editorial, "Stick to one thing," and refers to 30 years of hard work fitting himself out in bee-keeping, and a little further along mentions incidentally that 10 of that 30 years he studied and practiced photography "just as you and I have studied bee-keeping—reading all of the journals and books on the subject." But it's all right, W. Z.; if a man sticks to one thing as a vocation, he'll do that one thing better if he has something else as an avocation. Moreover, you made photography serve you to do better work in your chosen vocation. [The average person, I think, does not discriminate between *vocation* and *avocation*; but as *you* use the term, and correctly, too, *avocation* is not a business or means of livelihood, but a delightful *diversion* from one's regular bread-and-butter work. The average person will live longer—certainly those who are engaged in professional work—if he can have something to relieve the strain on his mind, totally different from the train of thoughts that occupy his attention during the day of bread-getting. A. I. R. would have been dead long ago if he had not had some hobby to ride; and I fear that I myself would lose interest in bees very soon if I could not break the monotony once in a while by thinking about cameras and automobiles. If you could hear father and me talk autos you would think we had found the "fountain of eternal youth;" and certainly it is a fountain to both of us. Photography has been one of my diversions; indeed, I believe it was I who urged on Bro. Hutchinson the advisability of taking up the matter of picture-making; and the next thing I knew he was at it as if it were his cooling stream of youthful vigor. As in the case of Mr. Hutchinson and myself, it has worked nicely along with our regular business—that of putting out illustrated journals. And say, doctor, while talking about avocations, diversions, and fountains of eternal youth, why couldn't you have told us about those roses and the posies, and other things that help to keep you young? In another Straw in this issue you almost go into ecstasies in telling about the geranium. Indeed, if I mistake not, you could hardly restrain yourself from bubbling over a little more than you did; but you felt that you must confine yourself to beedom, and you do by offering a splendid illustration of the truth made by the French scientist in our last issue.

And speaking about diversions reminds me that Prof. George Frederick Wright, the world-renowned geologist, of Oberlin, was once a minister in a small pastorate, at $600 a year. In his spare moments he found great pleasure and profit in studying the rocks in the neighborhood. He kept up these studies until scientific men came to know about him. He went to Oberlin, and there evolved his talks on the "terminal moraines" of North America from which new facts in the world's history have been brought forth. He has been sent to Alaska with a party of scientific men, and now he is recognized as authority throughout the whole world. *Avocation*—yes, that is what it was. If it had not been for hobby-riding, A. I. R. would still be a jeweler. Bees became with him an avocation, and after a time it became necessary for him to have another avocation—first, gardening, then greenhouses, bicycles, and automobiles.

Going clear back to Hutchinson and his avocation, you can not imagine how much pleasure he and I have had in talking over picture-making—negatives, developers, lenses, cameras, etc.; and when I see you I am only too sorry that I am not up on roses so that I can discuss this beautiful subject.

Perhaps this seems like a long footnote, and out of place in a bee-journal; but stop and think a minute. There are a good many *more* persons in this world who are taking up bee-keeping as an *avocation*, or *diversion*, than there are who take it up as a *vocation* or a means of a livelihood. Is there *any* thing in all this wide world that furnishes to the busy man—the merchant and the farmer, the lawyer and the doctor—any more *restful* thought than the study of bees? I am sincerely glad that I can help to create a new world of pleasure for tired brains.—Ed.]

Pickings from Our Neighbor's Fields
By
"Stenog."

REVUE INTERNATIONALE.

In retiring from the editorial chair which he has filled so ably for the past quarter of a century, Mr. Bertrand makes a short review of his career as editor of one of the best bee-journals in the world. As might be expected, his words are of special interest to his readers at home; yet I do not feel that I am encroaching on valuable space in giving here a translation of nearly all he says as he lays down the scissors and the pen, especially as his work was, all this time, so ably seconded by the late Charles Dadant, of Hamilton, Ill.

At the moment of taking leave of my readers, it is incumbent on me to express to them the regret which I feel on leaving them, and to thank them for their support — particularly the subscribers who have accorded me their assistance from the very beginning, and who have remained faithful to the end; and also those who have contributed by their communications to augment any interest which the journal may have have been able to offer.

I wish likewise to state here how much I am indebted to those of my colleagues who have aided me with their pen; namely, Mr. J. Jeker, the former director of the *Swiss Bee Journal*, who has enabled me to profit by his experience, and who was good enough to edit, the first year, the monthly calendar for beginners. Without his concourse and encouragement I should not have dared to launch my modest *Bulletin*. Some of my original co workers are, alas! no more in this world. My teacher, Charles Dadant, wrote for my journal up to the time of his death — that is to say, for twenty-three years. Mr. George de Layens sent me his articles for thirteen years, and Mr. Matter-Perrin did so up to a very advanced age.

More recently it was my dear friend Ulr. Gubler, the worthy president of the Societe Romande; then the eminent writer Mr. Crepieux-Jamin a great lover of the bees, and Mr. Camille P Dadant, the son and associate of my venerated teacher, whom I called on, and to whom I extend my thanks for the service they rendered me in continuing my journal up to the present time.

If I take a retrospective glance over the field of activity covered by the *Revue* during the past twenty-five years, I find that, at its beginning, things were different from what they are to-day. The rearing of bees in hives having movable frames was practiced by but few persons, either in Switzerland, France, or Belgium. In France the bee-journal that was most widely read was still resisting the introduction of the new methods. To-day their superiority is no longer contested except by a few hold-backs. These new methods are indorsed in France by a score of bee-journals and by a dozen in Belgium.

My *Revue* was devoted to a description and recommendation of the modes of culture that were more practical and less complicated, without falling into an exaggerated simplicity.

It has made a deep study of foul brood; and the observations and researches which it has published on the subject have contributed in a great measure in rendering more effective the struggle against this pest of the hives.

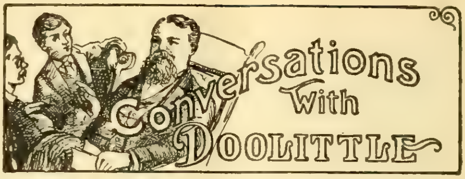
By its numerous translations of works and articles in foreign languages, it has taught its readers concerning apicultural things in other countries, such as England, Germany, Italy, the United States, where the culture of bees is greatly developed. Likewise it has published two works from Thos. W Cowan, the English apicultural expert, "The British Bee-keeper's Guidebook," and "The Anatomy of the Bee," besides a complete treatise on foul brood by Mr. F. C. Harrison, professor of bacteriology in Canada.

I have had the good fortune to publish a large number of unedited letters by Francis Huber, the eminent author of "New Observations"

Finally the *Revue* has made itself the organ of the Societe Romande d'Apiculture, whose proceedings it has published.

When in 1887 I adopted for my journal the name it now bears, *International Review*, which name was suggested to me by Mr. Gaston Bonnier, several of my colleagues in Switzerland made a little sport at that name, which they considered somewhat inflated. It has, nevertheless, been justified by communications which have come to me from all quarters of the globe, and by the number of countries where we have subscribers.

It remains for me to perform one more agreeable task — that of thanking warmly my brethren of the press, as well as many of my subscribers who have expressed to me their regret on the occasion of my retirement. I am greatly touched by the favorable judgment which they extend to my journal and to its director — a judgment which permits me to hope that my work will have contributed in some measure to the progress of apiculture.



PREVENTION OF SWARMING AT AN OUT-APIARY.

"Oh my! isn't the snow deep? Did you ever know so much in any winter before, Mr. Doolittle?"

"I think I did when I was a boy, Mr. Brown. But that was years ago, before you were born. But I never saw so much in the apiary here before. Even the roof to the bee-repository, doors and entrance, are all under snow. Just look!"

"Yes, I see. I find it snowed a foot last night: and this, on top of the two to two and a half feet we had before, makes a struggle for any one to go anywhere outside of the beaten paths and roads."

"Yes, and the roads have snow in them anywhere from two to ten feet deep, just in accord as the wind has piled it up. I thought yesterday morning, Jan. 13, it was going to thaw; but instead we have had this big fall of snow, and now the wind is coming west again for another cold spell. How did you enjoy the cold of the first of the month?"

"Enjoy it? Why, we could hardly keep from freezing. In fact, those three mornings of January 3, 4, and 5, when the mercury stood at 20, 21, and 20 degrees below zero, 'beat the record' here in Onondaga County. Then Monday, the 4th, it never got above 6 below zero, with the sun shining bright in the middle of the day. Why, on Monday night water froze on our stove, and that, too, with fire in the stove; and neighbor C. said some potatoes were frozen which were left in their oven, with fire in the stove at the same time."

"Tut, tut, that is entirely too fishy!"

"I did not say how much fire there was. I know that there were two coals as large as the end of my little finger buried down deep in the ashes in our stove, and I have told nothing but what can be proven by our oldest boy. But this is the first day of the bee-keepers' institute at Syracuse. Did you intend to go?"

"Yes; but on looking out this morning I saw it was going to be impossible to get six miles to the trolley, and now it is blowing a gale, which will stop all travel for the next 24 hours. But if you came over to talk bees we can have a bee convention all by ourselves, and perhaps get some profit in that way, though not as much as we would could we meet with the others at the convention. What shall we talk about?"

"The question I wanted to ask you is this. If you were going to run an out-apiary for comb honey, how would you manage to prevent swarming?"

"Well, that is quite a large question, and one I may not be able to answer fully. But as I have an out-apiary I can tell you how I manage that, if it would be to your liking to have me do so."

"That is just what I should be most pleased with."

"If I wish a small increase I proceed as follows: Placing a hive all rigged with frames filled with foundation or empty combs (or with only starters in them if it is preferred) on the stand of one of the populous colonies which I think may be preparing to swarm, I next set the sections from the old hive on the new, when I proceed to shake all the bees off their combs and out of the hive, letting them run into the new hive I have set on their former stand. I now place the combs of brood back in the hive again and carry the whole to the stand of another populous colony, setting this last colony on a new stand from 20 to 100 feet away, or distant from where it stood when I came to it. The sections are now taken from the moved colony and put on the hive of brood, into which the bees returning from the field are now pouring. When they find that this is not their old home they are somewhat homesick: and if their old home is nearer than 15 or 20 feet, many of the bees will find it, and, setting up the joyous hum of 'home is found!' will call the most of the bees away from the brood, which is not a desirable thing; hence I place the removed hive from 20 to 25 feet or more away if it is possible to do so."

"What about a queen for this made colony?"

"I generally carry along with me some nearly mature queen-cells, and give this made colony one of these in a queen-cell protector. This protector keeps the bees from destroying the cell till they realize their queenlessness, which happens a little before the queen emerges, so that, when the queen comes out, she is kindly received, and in due time becomes the head of the colony. In this way one new colony is made from two old ones; all desire for swarming is broken up, unless the season of surplus honey is long drawn out, while all three are in the best possible condition to store surplus after a week or so has elapsed."

"Then you would make such colonies about a week before the honey harvest arrives, would you not?"

"Yes; I calculate to do this from five to ten days before white clover is yielding honey bountifully, with all good strong colonies, leaving the weaker ones till about that much before the basswood opens."

"But, suppose you did not wish any increase."

"If I wish no increase I have a little different way of working, which is, to proceed as with the first colony till all the bees are off their combs and in the new hive, with the sections they were occupying on the new hive, as before stated. Then the hive of beeless combs of brood are set top of another colony (with a queen-excluder between the hives), not quite so strong as was the one just shaken from their combs. This gives this colony so much extra room that they will not think of swarming for a week to ten days, notwithstanding the vast numbers of young bees emerging from both hives of brood."

"That looks reasonable. But go on."

"At the end of a week or ten days, as most convenient for me, I go again to the apiary and make these two-story hives swarm, or shake them as I did the one-story hive at first. This gives rousing "shook" colonies; and as this shake comes just at the commencement of the honey harvest, great results are often accomplished."

"I see. But what about the hives of broodless combs now, as you have two instead of one?"

"As the weather has now become generally warm, fewer bees are required to take care of double the amount of brood than was the case at the first shake, so these two hives of brood are placed on a still weaker colony, and a queen-excluder is placed top of the weak colony so that the queen will not have access to these combs, and thus the brood is fast emerging from them. In about two weeks these three-story colonies are shaken; and as this comes right in the very height of the honey-flow, and each three-story colony gives a great host of bees, they will do a work that will surprise any one not acquainted with what bees will do under such circumstances."

"Well, well! I am glad I came over, for it is easy to see how such a course would result in good yields of honey with no swarming. But what about the three hives of brood this time?"

"These are placed over one of the very weakest colonies I had in the spring, or, if none such are left, then a nucleus or two have been formed a week or more previous to take care of such combs of brood. And I often put the hives which come from two shakes on one of these weak colonies, putting the two hives the queen had access to on top first (using a queen-excluder on top of the weak colony so the queen has access to none of the combs put on), while the four hives having only advanced brood are put on last. In this way this weak colony can care for the whole seven stories."

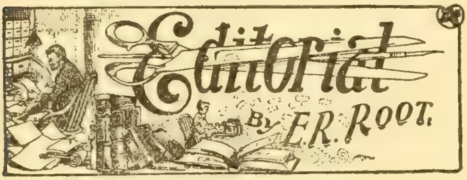
"Whew! What a hive that would make! How do you keep it from being blown over?"

"Some props are put against it if in a windy place. Otherwise a ten or fifteen pound stone laid on top is all that is necessary."

"What is the further management of these seven hives all in one?"

"They are generally left as they are till it is safe to store away the combs for winter without fear of the combs being harmed by the larvæ of the wax-moth, for the preservation of the combs is the most we care for after the last shake. However, if the flow from fall flowers is good I often have much honey in these combs for extracting, or for feeding purposes for any colony short of stores either in the fall or the next spring."

"Well, I thank you for this 'bee convention,' and I think I have learned something that will be of much value to me next year, as my great trouble with my out-apiary, which is worked for comb honey, has been swarming. With the one worked for extracted honey I have no trouble, for the comb room given them seems to be sufficient to keep them from swarming, except in cases of supersedure of queens; and where all young queens are at the head of all colonies, I have no trouble from that score."

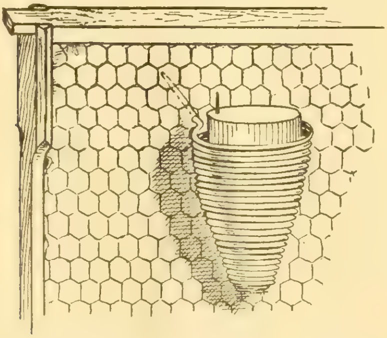


FURTHER advices from Cuba and California go to indicate that the season will be almost an entire failure in both places. The probabilities are there will be very little Cuban or California honey, of this season's production, on the market. This will have a tendency to stiffen prices for next season.

W. F. MARKS, of Clifton Springs, has been re-elected president of the New York State Association of Bee-keepers' Societies for the seventh time, by a unanimous vote. He has been chairman of the board of directors of the National Bee-keepers' Association for two years, and during his term of office he has been an active and efficient worker.

A CORRECTION.

IN our last issue, page 80, the accompanying illustration should have been for Fig. 10 in place of the one that did appear. In some way the cuts got transposed after the proofs were made up.



THE DZIERZON THEORY AND ITS AUTHOR.

AFTER my editorial in regard to Samuel Wagner was written I noticed Dr. Miller's Straw about Dzierzon, recalling to mind that the man is still living who wrote that book about forty years ago; and if it does not stand entire, clear up to the present day, it comes pretty near it. How I should like to take the old gentleman by the hand, and talk with him! That Dzierzon theory, coming out at the time it did, was to the bee-keeping world, on a small scale, what Columbus' discovery of America was to all mankind. Can not the whole bee-keeping world unite in a vote of thanks to this veteran before he is taken away?—A. I. R.

THE BOARDMAN HONEY CANDYING AT LAST.

IN the Sept. 15th issue of GLEANINGS, and again Oct. 15th, last year, I referred to some honey that Mr. H. R. Boardman had sent us in a jelly-tumbler, which had kept liquid for us for two whole years. During one winter it had been set outdoors on the sill of a window in my office, where it was subjected to all kinds of zero weather. I was surprised to see that, during the following summer, it was as clear as when we first received it. But we have been having exceptionally cold weather this winter so far; and this afternoon, Jan. 18, I accidentally cast a glance at that sample of Boardman honey, when, lo! it was *candied solid*. When Mr. Boardman wrote about it, Oct. 15, he said: "I am very confident—yes, sure—that I can do what I claim—put up honey that will remain liquid indefinitely—not almost but quite, and in any temperature." But, in the language of another, "the best-laid plans of mice and men gang aft agley." The Boardman honey stood it for two years; the continuous cold weather, however, often down to zero, was too much. The honey candied in spite of itself. It is so solid it can be put up in a bag, and be sent safely by mail.

But somebody—I think it was our friend Farmer, of Boston—said that a small per cent of glycerine would keep honey liquid indefinitely. Who has tried it? And that reminds me that I will put the thing to a test to-day. I will take a certain sample and divide it. Into one part I will put a small part of glycerine, and leave the other one as it is, and set them out on the aforesaid window-sill. More anon.

IMPORTANCE OF PUTTING THE HONEY ON THE MARKET EARLY.

WHEN I was east, visiting our agent, Mr. Wm. A. Selser, in New York city, he gave me a letter he received from a subscriber in Wisconsin, whom we will call X. Y. Z. About December 1, Mr. Selser received a letter from Mr. Z., asking him what he could get for about ten thousand pounds of comb honey, which was very nice. Mr. Selser said that he has tried continually to have the producers of comb honey realize the fact that the largest call for comb honey is from September 1st to December 1st. *There is more honey sold in these three months than all the other nine months of the year put together;* in fact, he says the call is during these three months almost exclusively. He has been trying for years to have the producers of comb honey (which is produced generally in June and early July) get their honey crated up and sent to the market by the last of August; but he says they hold it back trying to force the market by not revealing how much of a crop they have, *and then, in the beginning of winter, when it is so hard to ship comb honey,* write in that they have a lot they would like to have disposed of. Mr. Selser has made a specialty of this for ten years, and could tell almost to the week when grocers would want comb honey.

WAKE UP.

So he wrote our subscriber, in reply to his letter asking if he had been, like Rip Van Winkle, asleep for a long time, and where he had been with his honey for the last three months, telling him that, had he known of his lot of honey sixty days earlier, he could have got a customer at once, and he would have had his cash for it long ago; but as it was, he could find no customers at this time of the year. He received the following reply:

> Yours to hand. You say you are very sorry that I have just wakened up to the fact that I had some honey to sell or offer. Now, from the tone of your letter you probably think I am some "old plug of a hayseed" who didn't know any other way to sell honey than through the middleman; but in that you are somewhat mistaken. You say if I had written you sixty days sooner I would have had my honey sold without any trouble, just as if you were the only man in America who could dispose of my honey, and that now I would probably have to eat my own crop to get rid of it. I soon expect to make a trip to sell my extracted honey in glass cans and tumblers in three different States, so do not worry. I will probably get rid of that honey without eating it up. X. Y. Z.

We believe Mr. Selser is right, for it is in line with our experience. We have tried to emphasize this matter, and impress on the producers of honey that they should get their honey in shape to ship as early in the summer as possible. We have found but one year in the last ten where honey has brought as much after the first of the year as before, and the biggest prices are generally realized in the early fall. The trouble is, our bee-men are very busy with their other farmwork; they put off getting their honey in shape until all outside work is done. Could they "wake up," as Mr. Selser says, to the fact that it is highly essential to their pocketbook to get their honey in shape for market at once, or as soon as it is gathered, they would realize better prices.

HOFFMAN AND CLOSED-END FRAMES FOR EXTRACTING.

MR. E. F. ATWATER, of Boise, Idaho, writes a very interesting and readable article in the January issue of the *Bee-keepers' Review.* Among other things he gives it as his opinion that hanging frames are best for producing extracted honey. No hive, he thinks, is suited to the economical production of extracted honey that contains closed end frames; that we can not afford to use the same spacing for the supers, owing to the ridiculously thin comb left after uncapping; that "the proof of the folly of using closed-end frames for extracting-supers is found in the fact that no extensive producer of extracted honey is using them."

This may possibly be true when applied to the *strictly* closed-end frame; but the half-closed end, or Hoffman, is used by very many extensive bee-keepers for extracting. Some of them use these frames spaced close together (1⅜), and others put them from 1½ to 1¾ inches from center to center. I call to mind one of the most extensive bee-keepers in the United States, who uses Hoffman frames for extracting, and will use nothing else — Mr. William Rohrig, of Tempe, Ariz. Last year his crop of honey reached the enormous aggregate of 72,000 lbs. I once heard Mr. Rohrig debate this very question — that the Hoffman frame could be spaced as wide as the loose frame, because he could use it at any time in the brood-nest after extracting. There is no greater mistake than to suppose that such frames can not be spaced wide. In Cuba (and honey is extracted there very extensively — in fact, that is the main product) ten Hoffman frames are used to any other, among modern bee-keepers.

It would be interesting to know, if it is really a fact, that there are no extensive producers of extracted honey in the United States using closed-end frames. Capt. Hetherington, for many years the most extensive bee-keeper in the world, used such frames very largely; and he produced, if I mistake not, both comb and extracted honey.

BLACK AND FOUL BROOD IN NEW YORK; A REPORT FROM THE DEPARTMENT OF AGRICULTURE OF THE EMPIRE STATE; SOME SURPRISING DEVELOPMENTS.

ON page 586, July 1, last year, appeared a statement, by N. A. Moore and Mr. G. F. White, bacteriologists of the Department of Agriculture of New York, showing that probably the black brood, or New York bee-disease, was nothing more nor less than the old foul brood, recognized by Cheshire and Cheyne as *Bacillus alvei.* They had examined numerous specimens of brood sent in by the inspectors purporting to be black brood, that contained the familiar microbe of *Bacillus alvei.* As the report offered by the two bacteriologists above named differed so diametrically from the report of Dr. W. R. Howard, of Fort Worth, Texas, it seemed there might be a mistake somewhere. I stated at the time that the black brood I had examined in New York, and specimens that had been sent from that State to me, differed in a number of important respects from the foul brood I had seen in Ohio, Wisconsin, and Michigan—certainly different from the foul brood which we had years ago here in Medina.

It appears that Mr. Moore and Mr. White have gone over their work again this year, examining many more specimens sent in by inspectors, with the view of confirming the conclusions reached in their inquiries of the year preceding; namely, that the prevailing disease of the State which was so destructive was the foul brood of Cheshire and Cheyne. They also conducted various experiments to determine the value of the new treatment with formalin for foul brood, and at the same time investigated other diseases, such as pickled brood and bee-paralysis.

In the report for this year, which, through the courtesy of the Department, has been submitted to us in manuscript before its publication in book form, the conclusions of last year have been confirmed. A large number of samples of black brood have been examined, and in every case *Bacillus alvei* has been found. Specimens were received from Columbia, Albany, Schoharie, Montgomery, and Greene Counties. The bacteriological findings in every case were *Bacillus alvei* but no *Bacillus milii* of Dr. Howard; the conclusion is that the so called black brood that has made such fearful havoc in New York is nothing more nor less than the old foul brood of Cheshire and Cheyne.

TWO DISTINCT BROOD DISEASES IN NEW YORK.

They do find, however, the specimens of brood which the inspectors have diagnosed as *foul* brood differ from the specimens designated as *black* brood; that the foul brood which the New York inspectors had diagnosed as such was the same as the foul brood of Wisconsin, Canada, and Ohio. If this is true, then we never had foul brood here, but had a milder form of disease, but almost as destructive and contagious.

One fact is clearly brought out; namely, that there are *two* very *distinct* diseases in New York, both of which are destructive, one more so than the other. From the very first I have been satisfied that the disease we have called black brood was quite different from what we have had here at Medina.

Mr. Moore and Mr. White both appear to discredit the work of Dr. Howard; for, besides *not* finding *Bacillus milii*, they were not able to discover the bacillus of pickled brood, designated by Dr. Howard as *Aspergillus pollinus*.

THE FORMALIN TREATMENT.

The new drug treatment with formaldehyde was tested in various ways, but found to be not entirely effective. Their conclusion seems to be that, if the fumes of it are applied long enough inside of an inclosure that is hermetically sealed, it will kill all the living germs. Two or three hours of fumigation is not deemed by them sufficient, nor even 24 hours, in a hive no tighter than an ordinary bee-hive. Combs should be inclosed in an air-tight apartment, and then subjected to the action of fumes for a period of two days. The affected matter when so treated was then examined and found to be free from any live germs.

The formaldehyde gas, it is shown, is a good disinfectant for certain diseases; but it penetrates very slowly, and 24 hours of application of the gas on combs in the manner usually employed is not sufficient to kill all the spores in the decayed larvæ.

THE ORIGIN OF THE BLACK OR FOUL BROOD IN NEW YORK.

It appears that the disease, whatever it is, came from the South. "From the history of the disease in New York State," so state the authors, "we find that it was probably introduced into the State about eight or nine years ago by the importation of some diseased colonies from Tennessee. These colonies were shipped to Sloanville, N. Y., and from this center the disease seems to have spread."

This report, as a whole, is interesting and valuable. The ordinary layman for the time being, until more evidence has been furnished by scientific men generally, will be somewhat at sea as to whether foul brood exists or has existed in some portions of the country, or whether there is any such thing as real black brood. Perhaps Dr. Howard may be able to offer some solution of this matter.

SAMUEL WAGNER, THE ORIGINATOR AND FIRST EDITOR OF THE AMERICAN BEE JOURNAL; WHAT I KNOW ABOUT HIM.

In the introduction to the A B C of Bee Culture I have told about getting acquainted with Mr. Wagner through L. L. Langstroth. About as soon as I had looked over the literature of that day, and found what had been done with the honey-bee, I learned from my good friend Langstroth that an American bee-journal had been started, and that Samuel Wagner kept it going one year, and then, through lack of encouragement, together with the breaking-out of the American rebellion, it was discontinued. I at once wrote to Mr. Wagner, and a very pleasant correspondence ensued. A copy of the first volume, started in January, 1861, and kept up till December, was secured from him, and was read over and over again. More especially was that part of it read and re-read pertaining to the Dzierzon theory. I urged Mr. Wagner to re-commence the journal, which he did in July, 1866, and I with others very soon became a regular contributor to its pages. I am pleased to notice that one of the advertising sheets has been preserved in our bound volume; and among the advertisers I see H. A. King & Co., Nevada, O.; C. P. Bigelow, Perkinsville, Vt.; Adam Grimm, Jefferson, Wis.; A. Gray, Royal, Butler Co., O., and W. A. Flanders, of Shelby, O.

Very soon I began to talk about comb foundation made of wax; and my good friend Samuel Wagner was enabled to send me a piece of foundation, or "artificial comb," as we called it then, made of black rubber. I think the impression was made by setting up types made of ordinary type metal.

Information came in somewhere about 1867 of a comb-emptying machine, and from directions I got from friend Wagner I soon had a machine made, all of metal instead of wood as the Germans made them. Langstroth briefly described the German machine in a circular put out in 1867.

While I was at work on comb foundation and the honey-extractor, both Langstroth and Wagner encouraged me and gave me all the informatinn they could obtain in regard to the matter. Many of Wagner's letters during those years seemed to me of more value than the articles with which he used to fill the pages of the *American Bee Journal*. It seems to me unfortunate now that I did not save them. Wagner (*unlike* your humble servant) kept himself and his personal affairs very much out of sight in his editorial work.* The pages of the old *American Bee Journal*, away back, were principally occupied by contributors. He very seldom added a footnote, nor interfered unless we got to bearing on each other a little too hard. On one occasion he administered quite a sharp reproof to "Novice;" but it was a little paragraph at the end of my communication that might have meant myself or any or all of the rest of the correspondents. When it came to exposing swindles Mr. Wagner came out pretty severely and plainly. But there were only a few occasions on which he did this.

The *American Bee Journal* for March, 1872, announced the sudden death of our beloved editor. The article was written by father Langstroth, who was at the time paying a visit to his old friend Mr. Wagner. These two, Langstroth and Wagner, were a pair of God's noblemen. As I look over the pages and recall the past, I fall to wondering whether we have any, *just* such as they were, left. May be not exactly like them, but God forbid it should ever be said truthfully that the good men—the real *noblemen*—are *all* dead and passed away.—A. I. R.

MRS. O. L. HERSHISER.

THOSE of us who had the pleasure of stopping with Mr. and Mrs. Hershiser, at their residence, 301 Huntington Ave., Buffalo, during the Exposition, will not soon forget the hospitality extended to us by the lady of the house. When she was first married she knew nothing of bees, but took up the work with a keenness and interest seldom equaled by any good wife of the home. At the time of the Exposition she knew all the bee-keepers far and wide, and could talk bees and honey with the best of them. Whenever her husband (who was superintendent of the apiarian exhibits at the Pan-American) was absent, she assumed charge; and those of us who attended that exposition will probably recall that she was quite the equal of her other half in demonstrating the practical workings of the hive.

It may be interesting to note that a prize of $25 was offered by Mr. Danzenbaker for the best twenty sections of comb honey stored in his hives, and $15 for the next best. Mrs. H. secured the first prize, and Mr. H. the second. More than half the colonies at work on the exposition grounds were from her apiary, for it appears there was an individual ownership and a pleasant rivalry between them as to who should produce the finer and better honey. At that exposition she won out, taking first honors. Her husband writes me that she has on occasion opened a hive, and removed the comb honey without gloves, veil, or smoke—something that professionals usually do not care to undertake.

MRS. O. L. HERSHISER, THE LADY WHO SECURED THE $25.00 PRIZE FOR THE BEST COMB HONEY SHOWN AT THE PAN-AMERICAN EXPOSITION.

This seems like a late day to tell this story; but the fact that at least some of the points related did not reach me till a few days ago will account for this, and therefore I am glad to introduce Mrs. Hershiser to her old friends and acquaintances, and to the many new friends who have not had the pleasure of her queenly hospitality.

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* Our good friend Wagner was such an exceedingly modest man that he never had his picture taken although his friends often urged him to do so. When the bee-keepers' medley was published I was so anxious to have Mr. Wagner among the crowd that my good friend Langstroth said he could get me a picture of a man who looked so much like Wagner that his best friends often got them mixed up; and this picture, with the above explanation, now appears in the medley.

GENERAL CORRESPONDENCE.

Our Symposium on Candied Honey.

HOW TO KEEP IT LIQUID, AND HOW TO HASTEN THE PROCESS OF SOLIDIFYING.

The Marketing of Candied Honey; Eastern Candied Honey Successfully Bagged; Some Valuable Data.

BY CHAS. STEIGER.

Page 1044, last issue, contains a request by the editor for information on the subject of hastening the granulation of extracted honey preparatory to putting it in paper sacks to be sold in the candied form. Having read Mr. Aikin's excellent article on paper honey-packages, March 1, I decided that the innovation was at least worth a trial here; and now, having brought the same to a successful conclusion, I can best offer my information gained on the subject to readers of GLEANINGS with the statement of my experience.

Having ordered 100 of the 3½-lb. paper sacks from Medina I filled five ordinary lard-cans with white-clover honey just as it was taken off the hives and extracted, and set it away by itself in a room where it would keep coolest. Later, at the close of August, when the nights were becoming cool, I commenced stirring three cans of this honey, leaving the other two cans undisturbed. Every two or three days, when I would happen in the room with the honey, I would stir this honey for about a minute with a small stick placed in each can for this purpose. Oct. 10 I sold one can of this stirred honey to a customer who was so well pleased with its white, glossy, taffy-like appearance, that he much preferred it to any other. The remaining two cans of this stirred honey I put in the paper sacks, using a large spoon. Unusually warm weather for the season prevailed at this time, but by the last of the month this honey was candied solid, while the two cans of unstirred honey, and all the other of my clover honey, except some in barrels, was only slightly granulated. I account for the advanced granulation of the honey in barrels with the rolling and consequent stirring it received in the process of occasionally driving the hoops to keep the barrels tight, they being not quite full.

To begin stirring while the honey is yet clear, not only assists granulation but causes it to granulate much finer and more evenly, and adds greatly to its solidity in the candied form. The results of a trial, I think, will convince any one of the reliability of this statement.

The sacks are easily filled. Any one with ordinary care can do it neatly. I fill them on scales to insure correct weight. For the 3½-lb. sack I use boxes with inside dimensions 13¼×19½×7 inches; 20 sacks placed therein give them about the correct shape when the honey hardens.

For each box, prepare a rim of sufficient depth to extend the ends and sides of the box up level with the tops of the unfolded sacks; lay a paper on top to exclude the dust, and the bottom of the second box will make a cover for the one beneath. When the honey hardens, remove the rims, and, taking out one sack at a time, fold each one the same way, and return to its original position in the box, when it is in good condition for final disposal.

In regard to the utility of paper sacks as a honey package, I am prepared to speak in their favor. My trial of them has convinced me of their entire practicability. In this locality the different honeys — clover, basswood, heartsease, and Spanish needle, or a mixture of any or all of them, will candy sufficiently solid to serve all the purposes of handling in sacks, at least during the winter months. There is a growing demand for candied honey. I believe three-fourths of my customers prefer it. Why not assist them in indulging this taste by offering their choice in a package which does not materially advance the cost? In retailing, this is important — five and ten cents added by the cost of a jar or pail too often makes the difference between a sale and no sale at all. For testimony on this point consult your grocer.

I consider the 3½-lb. sack the size most convenient for general use. With the sack peeled from around it, this amount can be served entire on a plate, with the advantage of appearance and attractiveness not attained by the same laboriously dug from out a glass jar or pail. The size of package which will permit of the contents being served in one symmetrical whole, is, in my opinion, better adapted for the consumer's table than the larger sizes which, having part of their contents removed, will, I fear, too often be exposed to such unfavorable conditions as will permit of the sack being an unfit receptacle for its contents. With the sack partly peeled away it may be exposed to dust, and other unsanitary conditions; or, if allowed to become warm, the honey will adhere to the sack, making it a mussy job.

Here is one plain defect of the paper honey-package, but which can be easily remedied by using the smaller sizes as suggested, or instructing the consumer in the proper use and care thereof.

In introducing the paper package in my locality I have been quite successful. I meet my customer, and he is at first amused at the idea of honey in paper sacks, and inclined to be a bit funny. This is just the way I want him. A few words explaining the merit of honey offered in this form seldom fails to excite his desire for possession of some, to the extent of affecting his purse.

The encouragement offered by its ready sale, and the praise it received, has led me to decide to offer all my candied honey in this form the coming season; and that tells, without saying, my success with paper honey-packages.

Spring, Ill.

HOW TO MAKE HONEY CANDY QUICKLY.

BY S. T. PETTIT.

Mr. Root:—If I am not mistaken, a large majority of bee-keepers will rejoice that you are taking an intelligent interest in the candying of honey, indicating in a marked degree your watchfulness over the best interests of our chosen and sweet profession. Having been, since I started in the bee business, an advocate of selling honey in the candied form, I have studied not only how to make it candy quickly, but to do that other thing of much more importance—viz., to have it candy with a very fine smooth grain. Such honey is always more pleasing in the mouth—better to eat—and hence better to sell than the coarse-grained article; and, more, the latter is more inclined to leak or drain than the former.

First of all, I will say that, in order to have the best quality of candied honey, it is absolutely necessary that it be left with the bees until all or nearly all is capped; and in the second place, the extracting must be done in dry weather or on a drying day. A pinch of salt on a board in the honey-house, in the absence of an hygrometer, will measure the moisture of the atmosphere with sufficient accuracy for the purpose. At any time, if the salt is wet, just wait until it becomes dry. Honey takes in water as readily as salt, and more so.

The honey in the supers contains more water in damp weather than in dry; hence the necessity of handling honey in drying weather.

Extracted honey should be covered to exclude the air as much as possible. But, more to the question, agitation, jarring, or rocking the honey slowly, hastens the candying process.

A very effective method is, at the last of the season's extracting, to put the extracting-combs away in a dry place, uncleaned, until the honey is coming in pretty freely the next season. The fact is simply this. If this old granulated honey be left in the combs to mingle with the new it will unmistakably hurry up granulation. But if the supers be put on too early the bees may clean it all out. Another way is to mix some old candied honey with the new, and stir it once or twice or oftener each day. But right here I wish to enter a protest and caution against the two last methods, inasmuch as honey so treated is pretty sure to be coarse and rough in the grain, and, besides that, frequent stirring, or stirring at all, allows more or less of the aroma and flavor to escape. Another thing, stirring incorporates air with the honey; and if it be kept any considerable length of time, the incorporated air will impair the quality. Of all methods known to me, the following is my choice:

Any movement in honey, however small, encourages, assists, and hastens candying; and the smaller the movements and the slower the motion, the better will be the results. The honey will be finer in the grain and smoother in the mouth, and, if it has been well ripened by the bees, and properly handled, it will not leak or drain in the least.

When the time comes for bagging the honey, or putting it into small containers, on a warm day, the honey should be thoroughly stirred from top to bottom. The specific gravity of dextrose is greater than that of levulose, and hence the former gradually finds its way more or less toward the bottom of the tank. The stirring should be done on a warm day for two reasons. First, when the honey is warm the mixing can be more thoroughly done; and, second, whatever air through the stirring may be mixed with the honey can rise to the surface and be skimmed off.

Now we are ready to bag, bottle, or tin our honey. It should be done when somewhat warm, as the honey moves quickly in that condition, and takes in and holds less air than when cold and stiff.

Now that we have our honey or a portion of it in the small containers ready for the market except the candying, make it as nearly air tight as possible. Place it in some thin-walled building—a building that will cool off quickly, and take on about the same temperature as outdoor air. On very warm days the place must be aired to keep the temperature from rising too high, as heat retards granulation.

Well, Brother Root, I have indicated our part, and Nature will do the rest as follows:

The daily, alternate contraction and expansion of the honey, caused by the cool nights and the warmth of each succeeding day as it passes, will furnish all the necessary movements in the honey for best results in the finished article. The daily variations of temperature are strong factors in candying honey. They move the honey in itself.

This is an important matter, and I wish to say that, if we get in too much haste, and put upon the markets candied honey that is not of good quality, or so handled that the good qualities will perish, it will be a grave mistake. It is much more easy to hold a good position than to regain it once lost.

With our present experience, my impression is that we had not better undertake to carry much honey in bags very far into the heat of summer. Mr. A. I. Root makes a good suggestion when he advises keeping the honey air-tight.

RECAPITULATION.

To produce perfect candied honey, smooth and fine, in the grain, and that will not drain:

Let the bees ripen and cap before extracting.

Extract on a drying day.

Keep the honey well protected from the air.

Stir and mix well before putting it into small containers.

To candy it, jar, agitate, or rock the honey while in the small vessels. This can be done by machinery. But I prefer to let the changes in temperature caused by day and night do it. Place the honey in a thin-walled building—in one whose inside temperature changes rapidly with outside changes. The expansion and contraction furnish the necessary movements in the honey.

Note 1.—Thin unripe honey candies coarse and rough, and it is ill-flavored, and will drain; and, more, the selling and keeping qualities are of a low grade.

2. With plenty of combs you'll get as much capped honey as of the thin stuff, and the wax will pay for uncapping. The young bees that do not go to the fields anyway are just anxiously waiting for the job.

Aylmer West, Ontario, Can., Jan. 8.

HASTENING THE CANDYING OF HONEY.

I find that, to have candied honey in the tank when extracting, and pouring the honey in and letting it mix thoroughly, it will cause the whole to candy at once, and solid. Our honey here requires a lot of cold weather to candy, sometimes not granulating the whole season; but this summer, when I began extracting, I had a few pounds of candied honey in my tank, which holds 3600 lbs. I poured in on this from the extractor, and I drew the honey from the uncapping-box in half gallon jars. The honey from the box is liquid yet, not granulated a particle; but the honey in the tank was solid long ago. I drew out of the tank when full during extracting in August, and all stored in the same place, all subjected to the same conditions; and as to keeping honey liquid, I am convinced that the liquefying of honey per Weber is correct, and I will give my reason. To liquefy thoroughly, and not get too hot, will take nearly 36 hours. If there is a particle of granules in the honey it will candy again. One will think he will have the job complete, when, on close inspection, there will be granules in the mass.

I don't claim the discovery as to mixing granulated honey with liquid to cause it to candy. But I know that it is the best way yet discovered, and is a complete success with me. J. T. Hairston.

Salina, I. T.

[Some interesting facts are brought out by the three correspondents. First, that agitation does hasten the process of solidifying. Even the driving of the hoops of the barrel, and rolling the barrel on the floor, seems to have quite a perceptible effect; while honey from the same source, and the same cans, left without agitation, will remain perfectly liquid.

Another fact quite clearly brought out is that old candied honey mixed with new extracted also hastens the process, on the principle that "a little leaven leaveneth the whole lump." Granulation in honey is a process of crystallization; and therefore when crystallization is once started it spreads, shooting out in different directions. I have had bottles of honey exposed in front of my window; and I have noted particularly that the entire mass of honey would remain clear for a considerable length of time; but just as soon as the least particle of cloudiness appears in any portion of the mass, the cloudiness will increase very rapidly from that time on.

Another interesting fact is that Eastern honey can be successfully bagged. I have been a little fearful for some time back as to whether or not the Aikin paper package would be suitable for Eastern bee-keepers; but it appears from the testimony offered by our correspondents that it will probably be all right.

To sell candied honey it seems to be necessary to introduce it to the trade in person. The customer must have confidence in the purchaser or seller, for he is not inclined, in view of all the stories of adulteration that are afloat, to buy brown sugar under the name of honey. But when he is fully persuaded that it is the genuine product from the flowers, gathered by the bees, that candying is a natural characteristic of nearly all honeys; and when he is induced to take home and test a sample, and learns that it has a most delightful flavor, he becomes an eager and willing customer for more of that kind of goods.

While agitation, and the mixing of old candied honey with new extracted are considered important requisites, yet, after all, a low temperature (the colder the better) is the most essential condition for rapid candying.—Ed.]

A MODEL APIARY.

Hives on Individual Hive-stands.

BY T. C. CRAGON.

In position for the winter I have a separate stand for each hive, made 8 inches high, and strong enough to hold any reasonable weight. The hives are placed with the entrance to the south; the back of the hive is raised one inch higher than the entrance, which is full width of the hive. The bottom-board is made to allow a four-inch alighting-board, and so that the body of the hive will project ⅛ inch over the bottom at the back on either side. It is fastened with a 1½-inch screw on each side, so that the screw can be removed without moving the hive. Handhold cleats are nailed on all hives and supers. The covers are made of plain boards one inch larger each way than the body, and held at each end with cleats

⅞×1½ inches, nailed on the under side. It is then covered with cotton cloth secured with tacks around the edge, and painted three coats of oil and lead. This makes a cover that will keep out the wet and weather. I have had very good luck wintering for years. T. C. CRAGON.

Smithfield, Utah.

"IMPROVED QUEEN-REARING."

A Reply to Mr. G. W. Phillips' Article, Nov. 15.

BY ARTHUR C. MILLER.

Lest the reader may think I am putting my fingers in another man's pie, I will commence by saying that this article is written at the request of the editor and also of Mr. Alley.

A concise statement of Mr. Alley's system, just as I have many times seen the veteran himself use it, will assist in making plain further discussion.

1. Selection of exceptionally strong colonies.
2. Deprived of brood, queen, and combs, and kept confined for six hours. The deprivation is so made that the bees fill their sacs to the limit of their capacity; termed, for convenience, "cell-starting colonies."
3. Strips of comb containing an egg in each alternate cell are stuck to sticks in a frame or frames. These in turn are alternated in a hive with combs of *pollen* and honey, and the confined bees released on them.
4. Twenty-four hours after the "starting" colony *began work on the cells* the frames bearing the cells are taken away and given to colonies dequeened twelve hours previously, but not deprived of their brood.
5. Five days later the now completed cells are taken from these colonies, and gathered in one strong queenless colony.
6. Two days before queens are due to emerge, the cells are put into the cages and returned to the same queenless colony.

Alley's system differs from the so called "cell-cup" plan, as at present used and taught, in just two particulars; i. e., method of supplying eggs or larvæ, and of securing full feeding of the larvæ. In other features it is but the same as now advocated by all good authorities, only carried on with the utmost pains.

The great fault of Mr. Alley's book, and it is almost a vital one, is the mixing of a description of the construction of his appliances with a detailed statement of their use. Also, he wanders from one part of his subject to another in a most confusing way.

Mr. Phillips justly criticises the "Method No. 1" as given in the book. As described, it certainly appears most laborious. Let me explain why Mr. Alley does some things, and their true relation to his system will be more evident.

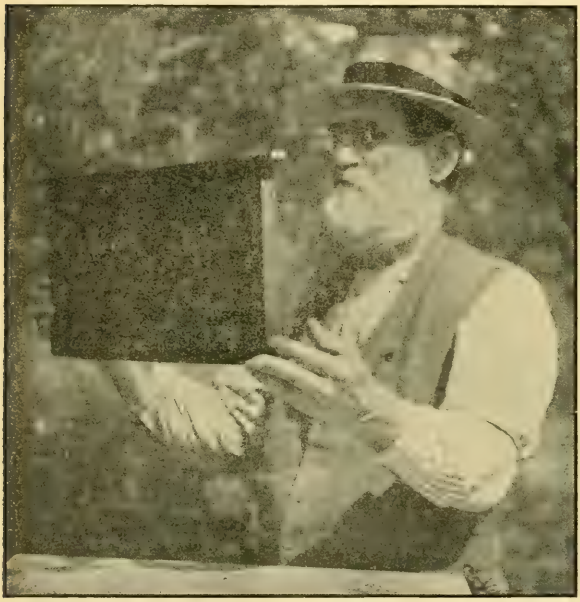
He uses large numbers of colonies of black and hybrid bees for cell-building.

A MODEL APIARY IN UTAH.

These colonies are protected with drone-traps (as are all but those flying his selected drones). That none of the objectionable drones may escape, all handling of the colonies is done indoors. To handle them comfortably there, it is necessary to subdue them pretty thoroughly by thumping and with smoke. Incidentally this causes the bees to gorge with food so that, when they get to the larvæ, they have a superabundance of pap.

Those of us who can do such work out of doors can save much of his labor; but we must take equal pains to secure the requisite gorging with food.

He keeps his breeding queen in a hive with frames 5×5 inches. He keeps this colony well populated with young bees by frequent additions of combs of emerging brood, and also by constant feeding. He does these things because he can always get eggs *just* when he wants them; know their age almost to an hour; do it with little danger to his queen; do it rapidly and with little physical effort, and without the loss incident to disturbing a full colony. In a large colony or in a nucleus with full-sized frames, eggs laid to order are not regularly possible.



MR. ALLEY IN HIS QUEEN-REARING OPERATIONS.

One of the little combs supplies eggs for 50 to 60 queens, and these eggs hatch within an hour after they are given to the queenless bees, so nicely does he time his work. From this it will be seen that the to be queens receive a surfeit of food from the instant of their birth.

I timed Mr. Alley one day (unbeknown to him), and from the time he went to the hive for the eggs, cut the comb in strips, stuck them to the bars, destroyed the alternate eggs, placed the frames in the food-stocked hive, and admitted the bees to them, was just two minutes. This is a speed which I venture to say is not habitual with any user of the "transferring-larvæ plan."

Mr. Alley takes particular pains to have food always present in all cell-building colonies, and he keeps filled feeders constantly on all such. He takes no chances with intermittent honey-flows. He takes the cells from the starting colonies, and places them in the middle of dequeened but not broodless colonies that the queen larvæ may have the benefit of young nurses all through their growing period — in other words, be in the most favorable condition possible.

As soon as the cells are capped he takes them away from these colonies merely as a matter of economy, such colonies having their queen returned, and at once resuming their normal condition. He has certainly reduced the economical use of colonies to a fine art.

Now comes the only fault with the Alley plan. It is the caging of the cells. In his hands it is a quick and simple though sticky and dauby job. Cell cups built on wood bases are certainly much more readily and neatly caged; but beyond this I have yet to hear of any *valid* claim to their superiority; and at what a cost this little advantage is secured!

Mr. Alley enables the bees to feed the larva from the first moment of its life, as their instinct directs. By the transferring plan, larvæ whose ages vary from a few to many hours are used, and many things happen to them thereafter if we may believe the writers.

By his system Mr. A. produces the most superb queens I ever saw —virgins looking larger and stronger than many fertile queens I have seen; and the worker bees of his strain are of but normal size.

Mr. Phillips cites p. 24, lines 21—25, of Mr. Alley's book as a statement by the latter condemning the "Method No. 1." What he does condemn is the putting of the started cell cups over an excluder above a colony containing a laying queen. I trust Mr. Phillips will look again. Possibly Mr. Alley's nucleus system will be improved; but as handled and operated by him it is wonderfully simple, and is economical to the point of perfection.

As to his tobacco smoker, I do not see what he could do without it. Sooner or later the rest of us will come to it for queen-rearing work, even if we have to devise some substitute for tobacco. It is the embodiment of convenience and efficiency.

Mr. Phillips' reference to the "sear and yellow leaf" hardly has to do with criticism of Alley's system of queen-rearing, and impresses one with the feeling that Mr. Phillips consciously or unconsciously harbors some personal or commercial antagonism to Mr. Alley. It had better been omitted.

Though well along in years, Mr. Alley is as active and enduring as many a man far his junior. Mentally he is as keen and alert as he ever was; and as he goes from hive to hive and from nucleus to nucleus, telling before he opens it just what is within, one envies him his wonderful memory; and yet he has been through trouble and sorrows which would crush most of us.

There is nothing spectacular or sensational about Mr. Alley, his system, or his queens; but they "get there just the same," and in a most satisfying way.

Providence, R. I., Dec. 30.

[You give us a very clear exposition of the Alley system, and I would suggest to Mr. Alley that, when he gets out a new edition of his book on queen-rearing, he incorporate your description instead of his own. His last book is somewhat confusing — too profuse is some details, and woefully lacking in some others, to make it easily understood.

The two essential differences between the Alley system and that of others seem to be, 1. A cell-starting colony queenless and broodless, confined for six hours; 2. Strips of natural comb, each alternate egg destroyed in lieu of artificial cells or wooden cell cups.

It may be that the queenless and broodless colony confined will have more pap for young larvæ than an ordinary queenless colony lavishly fed with syrup, but I should somewhat doubt it. As Mr. Phillips has already pointed out, it is a lot of work to make a colony broodless, as this brood must be taken out and taken care of.

The artificial cell cups or wooden cups do not involve as much work as would ordinarily seem. True, they require grafting; and right here there may be one item of labor not found in the Alley system. But a grafted cell gives an operator a selection of larvæ, and saves mutilating otherwise good combs.

We have for some two years practiced the Alley as well as the modified Doolittle system. The two have been worked side by side in order that we might be able to judge between them. Our own individual opinion is that the modified Doolittle plan, such as we have described and illustrated, is as simple as any, and gives as good queens as are furnished by any plan known. While the Doolittle system involves the grafting of the cells, it saves labor *after* the cells are once grafted, because they can be handled like hickorynuts. A cell made from a piece of comb is apt to be irregular in form, and requires trimming to get it into a queen-cage later on in the process. It was our own experience, after two years of trial, that the trimming of the Alley cells required more time than the grafting of the artificial cell cups, which, when built out and completed, are always clean and perfect. When the wooden cup is used, the cylindrical form makes it just right to plug up the hole in the cage or cell protector; and, what is of considerable importance, it can be shoved into the side of a comb without mashing or injuring it.

It was my privilege and pleasure to meet Mr. Alley at Boston, on a recent trip to that city. I was surprised and delighted to see how robust and healthy he seemed to be, even if he had reached the period of the "sear and yellow leaf," so far as age was concerned. He seemed to think it a great joke that he should be regarded as in his years of decline*. I remarked to him as I saw him, that, if the average man at forty were as strong and vigorous as he was, he might consider himself very fortunate indeed. Said I, "Mr. Alley, if you had your mustache trimmed off the same as Dr. Miller, there would be a strong resemblance between you — of the same height (short), of the same square stocky build, and of the same general facial expression." He remarked with some warmth that he considered it a compliment to be compared to Dr. Miller, even in mere physical appearance.

Mr. A. C. Miller secured a photo of Mr. Alley while in the midst of his queen-rearing operations. He had just caged a lot of his cells in Alley nursery-cages. The camera caught him in the very act, and I am pleased to introduce him to our readers, showing him the vigorous man that he is.—Ed.]

IN MEMORIAM OF "THE PRINCE OF AMERICAN BEE-KEEPERS."

BY E. R. ROOT.

Capt. John Edwin Hetherington was born Jan. 7, 1840, in Cherry Valley, N. Y., where he always resided, and died there the last day of the old year. It has been said of him that he would have gained distinction in any occupation, for nature had endowed him with indomitable will power capable of organizing, and executive abilities such as would have quickly placed him at the head of any large undertaking. He was born of good ancestry, his father being an educated English gentleman, and his mother of the old Judd family, of Connecticut. His father died when he was but three years old, leaving the training of himself and two brothers on the mother.

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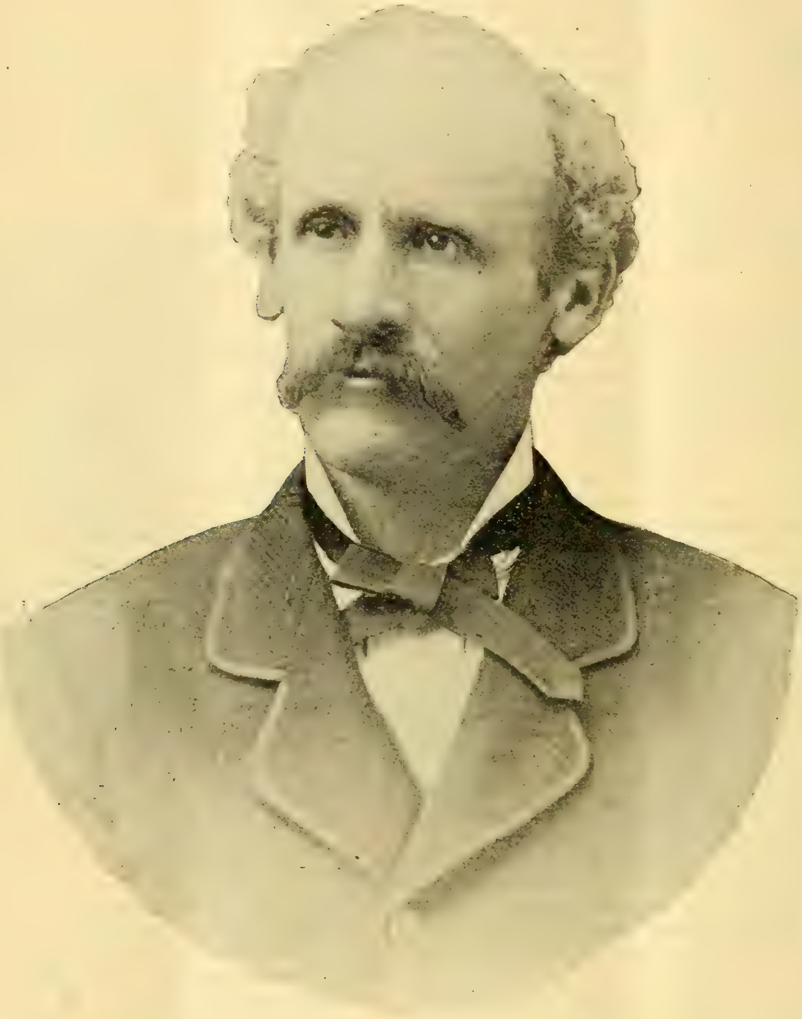
*A mutual friend had written me a short time before, that Mr. Alley was in his declining years, sick, and not long for this world. Full of sympathy I had written him, expressing my regret over his physical condition, expressing the hope that he might hold out some years longer. My! what a letter I received! He desired to assure me that he was far from being a dead man, and hoped I might come and look him over.

Distinguished as a soldier, he was not less remarkable as a bee-keeper, for his career was little short of marvelous. Intelligent, progressive, he probably handled a larger number of colonies for a longer period of time than any other man who ever lived, or possibly ever may live. While it is true that J. S. Harbison, of California, at one time had 6000 colonies, it was for only a short period. It was Capt. J. E. Hetherington who enjoyed the distinction, for a period of over twenty years, of being the most extensive bee-keeper in the world, owning and operating over 3000 colonies during the greater portion of that time; but of late years I believe he did not keep quite so many. Whether he was at the time of his death the most extensive bee-keeper in the world is not important; but certain it is that Capt. Hetherington has been a very unique figure — not because his writings appeared in the bee-journals, nor because he attended the conventions, for he has written but rarely and attended but few meetings, but because he managed successfully 3000 colonies for over twenty years, and because he introduced many valuable improvements—improvements which, after the lapse of many years, were finally adopted and put into current use by bee-keepers all over the United States.



CAPT. J. E. HETHERINGTON.

The captain did not follow in the beaten track of supply manufacturers by any means; but he acknowledged with considerable pleasure that Father Quinby did more to help him in his early bee-keeping experience than any other man; and it was the Quinby system of hives and brood-frames which he adopted and subsequently improved. At one time the captain had nearly all his bees on the Hetherington-Quinby frame—a frame having closed ends or closed uprights; but, if I am correct, his colonies, at the time of his death, were divided on Quinby and what is known as the Van Deusen metal-corner open end frame. For colder climates, I believe the captain preferred the closed ends; but in the apiaries of Virginia he used, as a matter of preference, the open-end Van Deusen.

I need not dwell here particularly upon his record as a soldier any more than to state that he was captain of a company of sharp-shooters in the Civil War—a position that means a great deal more than to be captain of an ordinary company of infantry. Three times he was wounded, and was finally discharged on account of disability from his wounds. At the close of the Gettysburg campaign his name was sent up to the War Department as one who had rendered gallant service for his country.

But it is of his record as a bee-keeper that I wish to speak more particularly. It may not be generally known, but he was the originator of the no-drip shipping-case that is now used almost universally throughout all civilized beedom. When we first introduced this case some years ago, it was brought to the attention of manufacturers by the commission-houses, who urged upon them the importance of making their cases on the no drip plan.

Almost in the same way the tall section came into prominence. Where it came from no one seemed to know; but Mr. Danzenbaker, when he called at Medina, said he first saw them at the Centennial at Philadelphia in '76, filled with beautiful combs. He subsequently learned that it was the honey of Capt. Hetherington. That the captain was the first to introduce it, there can be no question, for all the evidence points that way.

Mr. Hetherington was the first to make a really practical thing of closed-end frames. True it is that Mr. Quinby invented them, and came very near adding to them their finishing touches. But as Mr. Quinby originally used them in his particular form of hive, the frames were by no means as easily handled as in the particular form used by Capt. Hetherington; and from this originated the Hetherington-Quinby frame and hive that are used so much in certain sections of New York.

In these latter days, when the matter of transparency in foundation is so highly prized, it may be well to remember that Mr. Hetherington was probably the first to get out what was really the first transparent foundation. Those of us who bought the Van Deusen flat-bottom article years ago will remember how beautiful and transparent it was, and that nothing has been made of late years that was any clearer or more beautiful. Whether it had the same pliable qualities that are found in the Weed transparent foundation I can not say.

It was Capt. Hetherington also, I believe, who first conceived the idea of incorporating fine wire into the foundation itself. A patent was granted, and for years the Van Deusens made what was called their wired flat-bottom foundation under royalty from Mr. Hetherington.

In the matter of fish-bone in comb honey, it was Capt. Hetherington who first saw the importance of reducing the amount of wax in the base and putting as much as possible in the wall. We have talked a good deal about this of late, but really Mr. Hetherington was ahead of all of us in this.

Super springs, the exact form we are using to-day, a device for applying a *yielding* pressure on sections while in the super, were the invention of Capt. J. E. Hetherington—at least he used them away back in 1872, and has used them continuously till this time. This one fact alone speaks volumes for their practicability; and it is strange that we of these latter days did not discover their value sooner.

CELLAR WINTERING WITHOUT VENTILATION.

Some Contradictory Experiences.

BY IRA BARBER.

Friend Ernest:—I notice what you say in regard to my being located so far north that it may make a difference in keeping bees quiet in winter quarters. My bees years ago acted just as you say yours do. They would scatter out and fly about in the cellar every time the weather warmed up outside, and not quiet down until the weather became colder, if I did not give them ventilation from some source; and since I learned that it was fresh air that caused all the trouble I have seen no such scattering out, no matter how often the weather changed during the winter.

The cellars are made frost-proof if no bees are in them; and where there are bees enough put in to raise the temperature very much, the bees will bunch out at the fly-holes; and when the room cools down, the bees will draw back in and do not rouse up and fly about as one would suppose they would. The rise and fall of the temperature is so gradual that they do not appear to notice it.

I want you to come up here and see for yourself, for I think it would be the best investment you could make; for if I had known, 30 years ago, what I am telling you it would have been worth thousands of dollars to me; for I never could winter bees so they were ready for sections when set out (so far as bees were concerned), until I kept all fresh air from them while in winter quarters.

Your cellar under the machine-shop is a large one, and partitioned off with burlaps, as I understand. Now, that is altogether too airy a material to make a close bee-cellar, for your bees get every change in the weather while they are in there.

I am not able to go around with you to the different bee-cellars in this locality; but Charles Halligus lives right in the Junction, and will carry you to his bee-cellar and to all the others in this section, free of charge; so all it will cost you will be your time and transportation.

I am out of the bee business entirely, and can not get around without crutches; but you are a young man, and have a double interest in the honey-bee; for if they do not come out strong in the spring, bee-keepers have little use for the supplies you furnish; and according to my experience of 52 years in wintering bees, your plan of airing bees in a cellar to keep them is malpractice of the first water, as I found it out more than 20 years ago, and I see no reason why you should succeed in doing the same thing that was a failure to all that practiced it here.

You say that your bees did not come out well where you had a four-inch ventilator last winter, and now you have a sixteen-inch ventilator in place of the four-inch. Now, I want you to see if the bees do not come out in still poorer condition next spring, and also those in the house cellar with no ventilation. If you come up to see the way bees are kept in cellars here, I think you can get a better pattern for a top-bar for brood-frames than you have, for I have never seen it in any of the supply lists. T. H. Barber was the first to make and use it. It is strong and cheap, and holds the foundation every time. Don't fail to come up. Ira Barber.

De Kalb Junction, N. Y.

[I came very near making you a visit, Mr. Barber, about a month ago while on a late eastern trip; but as I had been delayed, and as it was too early in the season, I finally decided to defer my visit till another time. In the early part of March, when bees are most apt to be uneasy, I may run up and see you, for this is a very important matter. In the mean time I have no reason to doubt your word; but what you say is so diametrically opposed to my own experience and observation from an extended travel that I am simply dumbfounded. Last winter we did have one cellar where the bees were confined all winter without any ventilation, or practically none. It is a wonder that they came through alive. The cellar bottom was literally covered with dead bees to the depth of several inches. This winter that *same* cellar, with about the *same* number of bees, has a 16-inch-square ventilator running up through the roof, and the bees *are in fine condition.* A year ago at this time they were very uneasy, and it looked as if they might all be dead by the opening of spring.

I can not understand why bees should be in a quiescent state, with the air foul, and probably warm. If the temperature were too high, or the ventilation too scant, it has been my experience, in *all* the cellars I have ever seen in midwinter, that the bees were uneasy. I have stepped into cellar after cellar of this kind, shut the door, and waited a few minutes in absolute darkness. If there were no ventilation, or had been none, I could hear the zip, zip, zip of the bees flying out and dropping on the cellar bottom, and whirling around in the darkness among their dead fellows; and the stench and odor were simply awful.

In our own experience this flying-out stops immediately upon an infusion of fresh air, unless it is so near spring that their abdomens are distended from fecal matter. Nothing then but a flight on a warm day will bring relief.—Ed.]

SMOKERS AND FUEL.

An Interesting Discussion from the Standpoint of an Expert.

BY T. F. BINGHAM.

Very often have the remarks in the various journals relating to the fuel used in smokers come to my attention ; but as it is presumable that I am interested in particular smokers, and probably biased, I have enjoyed the various dissertations and kept quietly on.

I greatly enjoyed the examination of the sketch and patent office explanation on page 1000, which seems entirely comprehensible and plain. As above, it might be inferred that, having been a close practical student of smokers so long, yet, though biased, a reasonable consideration of even a vital interest would not be entirely out of place.

It would seem a *coincidence*, at least, that watchmakers should invent smokers. The fact that patient analysis of principles nowhere finds a better illustration than in practical watchmakers' everyday lives may, in a certain sense, account for the smokers that have been devised.

No one will expect me to criticise any smoker, be it what it may; but there is one fact that will be of interest and value to bee-keepers. Smoke is the result of imperfect combustion. The lid or top or chimney, usually called a nozzle, is all there is in ordinary smokers to prevent the fuel in them from blazing—giving off no smoke of value. This curtailing of combustion, at the same time encouraging it, lies at the foundation of all modern smokers. You who have a doubt as to the effect of a blast of air on fuel in a smoker, please see how continuously and how slowly you can work the bellows for a few moments. The result will surprise you. As if by magic the fire will start up, and a small continuous stream of smoke will slowly issue, and the fuel will soon exhaust itself. If, instead, the bellows is worked frantically for the same space of time, the fuel will also be exhausted ; but if, on the contrary, the bellows is allowed to rest until the nozzle and body of the machine are full of smoke, and then with gentle pressure of the bellows expelled, your object will have been accomplished.

It is this feature that renders large smokers so much more satisfactory. I have tried for twenty years to encourage bee-keepers to use large smokers; but from the fact that a small good smoker is so much better than none, and that a small good smoker is vastly better than a large poor one, and, further, that the small one can be made at a less price, the bee-keepers have, many of them, used what we would call small smokers. Of course, in my apiary I use only experimental smokers; that is, I try to use all the peculiar smoker ideas that the management of from 100 to 200 colonies matures or suggests. The bee-keepers are not expected to try all these various schemes for raising and managing smokers; but a maker of smokers would not be held blameless for the sale or advertising of an untried machine.

Answering the various and numerous remarks about the best fuel for smokers, it would be well to consider the kind and size of smoker, and the easy procurement of fuel. For instance, take Bingham's directions sent in all his smokers; viz., sound hard wood for fuel, etc. That is sound advice for his smokers of the smaller sizes, and would answer for all; but as any brittle bark from an old stump or log or woodshed could be readily obtained and easily pounded into small pieces, and whose coals would not readily set fire to any thing, yet, if perfectly dry, burn well in large smokers, it would be reasonable to use such fuel in large smokers, though not as good as split wood in small ones.

A smoker does not need working all the time if it will only go all the time without it. Good fuel *aids* in rendering a good scientific smoker always ready and willing to do its duty. The fact that a smoker *will* burn any thing affords no reasonable excuse for burning *every* thing.

Farwell, Mich.

MODERN QUEEN-REARING.

As Practiced at the Root Co.'s Yards; a Brief and Comprehensive Treatise on the Latest and Best Methods, Gleaned from all Sources. Concluded from Last Issue.

BY GEORGE W. PHILLIPS.

Nuclei must be kept in a prosperous condition. A handful of half-starved broodless bees will never do well. They will not have enough energy to resist the attacks of robbers, and, for some reason or other, the virgin queens which they contain generally fail to get fertilized. Don't remove the laying queen from them until they have filled the combs with eggs; and where they are unfortunate enough to lose many queens in succession, frames of sealed brood should be given. During a dearth of honey these little colonies must be stimulated: if not, the percentage of missing virgins will be great.

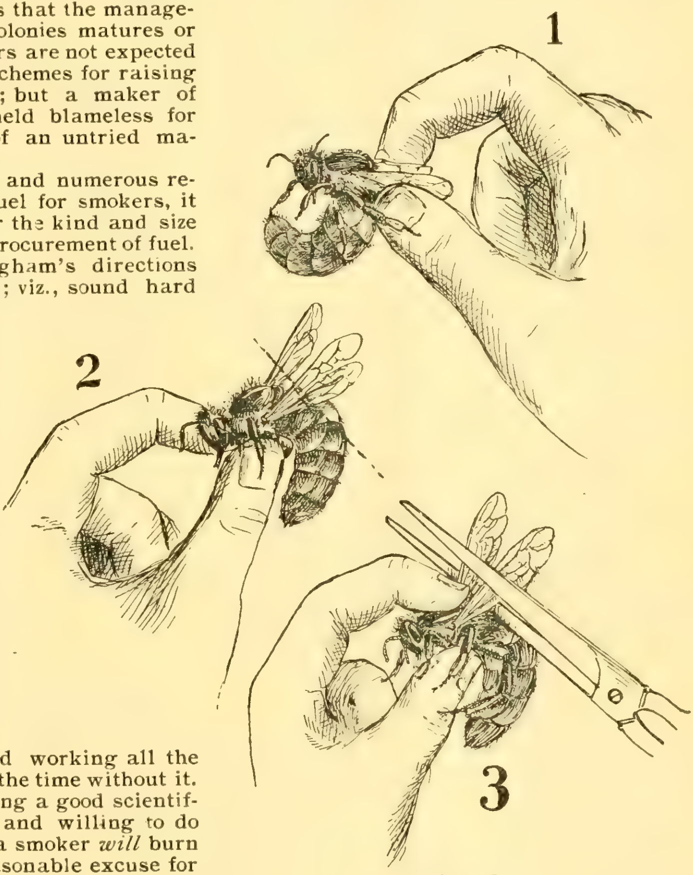


Fig. 15.

We will take it for granted that you have 18 nuclei, all of which contain fertilized or laying queens which you wish to remove for sale, or introduction into some of the strong colonies in your yard. Go to the colony that contains the nursery of virgins; remove the cages; take the cells from them from which the queens have hatched; slip the tin cover over the hole, and let the tin shown in Fig. 1 cover the candy-hole. Take these 18 virgins in their cages, and put one (as shown in Fig. 14) in each of the nuclei having fertile queens. Three or four days after, remove the tin that covers the candy-hole, and let the bees release the virgin. At the same time this is done, another virgin should be given to each nucleus, to be released as soon as the second is laying, and so on. By working in this way the getting of virgins accepted is rendered a comparatively easy matter, and the subject of queen-fertilizing is considerably simplified. Besides, the output of a laying queen from a given number of nuclei can be nearly doubled.

Before Mr. Titoff made his cage we used the Stanley and Miller cages—the Stanley as a nursery and the Miller as an introducing cage. The virgins then had to be transferred from one to the other, which, when a lot had to be done, was a tax upon the time and patience of the bee keeper. The same might be said of almost every other kind of nursery-cage in vogue. In the cage here shown, both features are combined — the virgin hatching right into her introducing cage. By referring to Fig. 11 it will be seen how readily fresh candy can be supplied, and the tin on the bottom makes it easy to confine the queen or allow the bees to release her.

If you desire to make sure of your new swarms, clip the queen's wings. An opportunity for doing this is offered when they are removed from the nuclei for introduction into strong colonies. Take the queen from the comb by her wings with the right hand; hold the first finger of the left hand in front of her and let her catch on to it. As soon as she does so, bring your thumb upon her feet; let go your hold on her wings, and, as she raises them in an effort to fly, clip off the membraneous portion on each side symmetrically. Never hold the queen by one foot only, or she will swing round and round and attempt to wring it off.

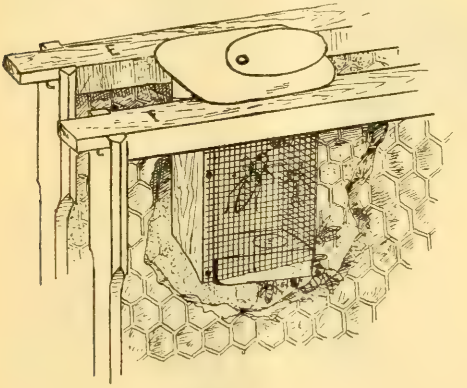


Fig. 14.

In Fig. 15, 1 gives an idea of how the queen should be picked up; 2, however, is misleading. The queen is to be held in exactly the opposite position from that shown — her head turned toward the end of the first finger, her body resting flat upon it, and her wings extended. No. 3 shows another manner of holding her, and, for the beginner, perhaps a safer one. She is taken up by the wings as shown in 1, and the fingers of the operator rest upon the thorax, which, being harder, is less liable to injury. Beginners had better clip the wings on one side only, as those on the other serve as a means of lifting her in the future.

Heads of Grain from different fields

LATE-MATED QUEENS, ETC.

1. Will a queen raised and mated in the fall, that has done no laying, be good for any thing? I have three that I know were mated late in the fall—too late to lay.

2. I have two or three colonies in hives the bottoms of which are wet, the water even running out of the entrance, although there has been no moisture of any kind for over two months. The bees seem perfectly healthy; but I can not understand the water in the hives in such dry weather. Will it do any harm? The hives are raised about four or five inches from the ground.

Bloomfield, N. M. **FRED L. CLERC.**

[1. Yes, such queens will usually lay in the spring, providing they have been mated in the previous fall; but unless there are drones flying late (and usually there are none) such queens would be worthless.

2. The condition described is not abnormal. A powerful, healthy colony will give off considerable moisture. If the bottom-board or sides of the hives are cold they will collect it in the form of numerous drops. —ED.]

SWEET CLOVER.

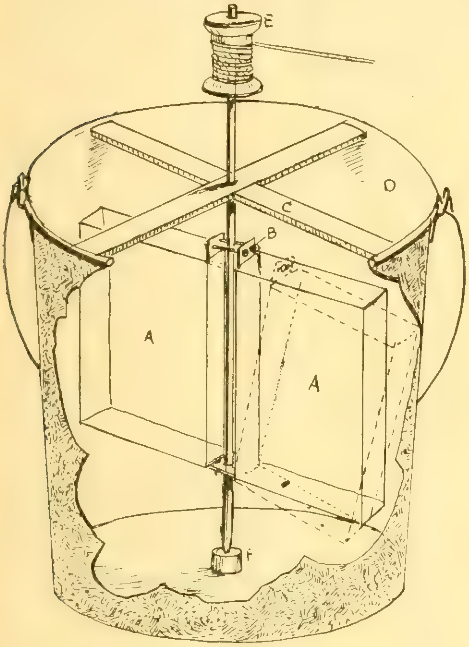
It doesn't seem to me to be quite right to scatter the seed around in roads and other people's lots. I have tried for several years to get our fence rows and waste patches seeded; but my sheep, goats, and horses seem to search it all out and keep it down.

La Haye, Ills., Jan. 14. **W. D. NULL.**

[Why, friend N., your letter seems to answer itself. I do not know but some of our readers will think it a little bit of a joke when you say your conscience troubles you about scattering the seed around in waste places, and then to tell us that your "sheep, goats, and horses search it out and *devour* it" so as to prevent you from getting a stand. If you think your neighbors would complain if you should sow red or medium clover in waste places along the roads, or even if some of it should get over into their lots, then you ought to be pretty careful about sowing sweet clover. I do not know that I ever heard of scattering sweet clover or any other honey-plant seed on land that belonged to somebody else, even if it was waste land, and I would not recommend such a course. Yet all those who persist in pronouncing sweet clover a weed should recognize it is just as much one of the *clovers* as mammoth, red, and medium.—A. I. R.]

CARL'S EXTRACTOR FOR UNFINISHED SECTIONS.

In GLEANINGS, p. 928, Mr. C. R. King asks if unfinished sections can be extracted without breaking the combs. My brother has made a very nice little extractor for just such sections, and it works very nicely. It is made out of an ordinary-sized galvanized pail, and is operated by means of a cord, by which means the speed can be regulated in accordance with the sections to be extracted. The frames can not be reversed; but the sections can be made to operate in the opposite direction. The whole thing is a very inexpensive affair, and will come in quite handy for those who have a great many unfinished sections which they do not wish to lose. Perhaps it can be made to accommodate four sections at one time—ours is for two. I send drawing herewith.



A A, baskets to hold frames; B, pins to hold baskets; C, braces D. common galvanized pail; E, spool and cord for power; F, sockets for shaft; dotted lines show basket tipped to receive combs.

H. F. CARL.

Washington, D. C., Nov. 5.

[Where one has a full-sized extractor it is better to use a frame that will hold four sections at once or two such frames for a two frame extractor. A small machine such as is here shown *can* be made to work, but it will consume a lot of time for a few sections.—ED.]

WIDTH OF ENTRANCE FOR INDOOR WINTERING; DEPTH OF EXTRACTING FRAMES.

1. I have my bees in a cellar. The bottom-boards to the hives give a clear space of ⅞ inch under the frame. Do you consider that sufficient ventilation?

2 How deep would you advise making extracting frames, and what weight or grade of foundation would you use?

Athol, Mass. A. M. V. HAGER.

[1. Ordinarily the ⅞-inch space under the frames will be sufficient. Dr. Miller, however, prefers full 2 inches. The deeper space is, perhaps, better; but we have secured uniformly good results with a ⅞-inch space.

2. Anywhere from 5 to 7½ inches is the usual depth for extracting-frames, preferably the latter. In any case, use some standard dimension to avoid confusion, so that you will be able to get your supplies at a reasonable figure. The two depths of shallow extracting-frames most commonly used are 5⅜ and 7½ inches deep.—ED.]

GALVANIZED STEEL ROOFINGS.

Seeing your editorial, page 956, on roofing materials, I should like to ask whether you know the galvanized steel roofing sold for house roofs to be durable, and whether it will be cheaper than zinc for hive-covers? Would it require painting?

R. B. HUNTER.

Brinkleyville, N. C., Dec. 2.

[The galvanized steel roofings sold on the market I think are all good — at least that has been our experience. Zinc would cost nearly twice as much. No paint would be required, but it would be advisable to put one coat of white on so as to draw less heat if the hives were exposed to the sun.—ED.]

ACID FOR REFINING WAX.

Will you kindly inform me which grade of sulphuric acid is used in cleansing beeswax, the common or the C. P.? How much stronger is the C. P. than the common?

WILLIS H. FREEMAN.

Westville Center, N. Y., Dec. 5.

[The ordinary sulphuric acid, the commercial article, is the kind to use. The C. P., of course, is all right, but too expensive.—ED.]

SOUR MOLASSES.

Having a chance to purchase a barrel of sour molasses, would it be fit to use for spring feeding, and should I purchase the same for that purpose? W. C. HAINES.

McComb, Ohio, Jan. 5.

[We would not advise you to use the sour molasses. It is not even fit for spring feeding.—ED.]

REPORTS ENCOURAGING

[There has been some objection made to this department, to the effect that it is misleading to pick out the *good* reports. This may be to some extent true; but for all that it is right that every one who undertakes bee culture, and fails for the time being, has a right to know and ought to know the *possibilities* of bee-keeping; and we all ought to know what is possible for an expert. Our old friend Dr. Miller has had so many discouraging seasons that, if I am not mistaken, he has once or twice almost felt like giving it up that is, taking one year with another. But now is it not worth something to every reader of GLEANINGS to know what the doctor did during the past year—see page 13? Some of you may say it is accidental and there is no particular credit due the doctor, but I do not believe it. I think there may be slipshod bee-keepers in his own neighborhood (perhaps there are none, however), that may not have noticed the season was any thing remarkable. The great yield he secured was largely the result of rare skill, and the accumulation of years of experience. Now let us gird up our loins and be able to do something like it when Providence favors us with a bountiful yield of honey. It would be funny indeed if we old chaps have not accumulated just a little wisdom during the years a kind Providence has permitted us to live and learn. Is not that true, doctor?—A. I. R.]

FROM 1 TO 4, AND 250 LBS. OF HONEY.

Here is my report for 1903: I brought one colony when I came from Colorado last spring. June 5th I divided into four nuclei. I received 250 lbs. of nice comb honey, and I now have four good strong colonies to experiment on this year. T. J. LANDRUM.

Roswell, N. M., Jan. 10.

You ask for reports. My report, from 63 colonies, spring count, was 6415 lbs. of comb honey sold; considerable given away; increased by nuclei to 72.

De Kalb, Ill., Dec. 25. A. Y. BALDWIN.

From 32 colonies, spring count, I harvested this year 1004 lbs. extracted and 614 lbs. comb honey, which is considered good for this region. The season was cool and wet, but not so disastrous as the summer of 1902.

Bloomdale, O., Dec. 24. M. N. SIMON.

I transferred in spring; increased from 59 to 83; got 1550 sections, all No. 1, and 325 lbs. of chunk honey. My average from the old-fashioned gum has been 20 lbs. for the last six years. J. J. WILDER.

Cordelle, Ga.

Spring, cold and wet; first swarm, June 28; excessive swarming throughout July, August, and September. White clover and heart's-ease were abundant. Average of 70 lbs. per colony. F. M. ROSEMAN.

Marquette, Neb., Dec. 26.

I send you my report this year, with 14 colonies, spring count; increased to 24; got 800 lbs. comb honey. I have owned and kept beesfor 73 years. I can say this has beat all years for swarming.

Darlington, Wis., Dec. 30. JOHN CLINE.

I started one year ago with two stands of blacks, and sent to Moore for two of his long-tongued Italians, and raised my own queens. I have 14 stands, and I believe they are pure Italians. The one stand that I did not disturb stored 80 lbs. of comb honey. M. M. BARRON.

University Park, Ore., Dec. 12.

I started in the spring with 11 colonies; increased by swarming 4 colonies; captured runaway swarms, 4. Total, 19 colonies. I got 4225 lbs. of honey, all extracted except about 300 lbs. of section honey, and got 19 lbs. of nice yellow wax from cappings. Bees are all rich in winter stores. Prospects are fine for a crop this year — white clover everywhere. WM. O. HEIVLY.

Raymore, Mo., Jan. 9.

My report for the year is 85 colonies, spring count; increased to 146. I have extracted 24 000 lbs. of honey, and 253 lbs. of wax. My average of 282 lbs. per colony is pronounced marvelous, and many doubt my statement. I can verify by indisputable data. I have been in the business only two years, and have made big money both years.

THOS. WORTHINGTON.

Leota, Miss., Dec. 22.

I have been a bee-keeper twelve years. I started with one colony, and have kept increase down as much as possible. Now I have 40. Lowest average was 20 lbs.; highest, 175 lbs. per colony; general average, about 50 lbs. I sell all my honey in the home market, at 15 cts. for comb (Danz. sections); 12½ for extracted; main harvest, white clover. I rarely have to feed. I winter outdoors; losses small. M. D. ANDES.

Bristol, Tenn., Dec. 23.

Mr. A. I. Root:—I just received GLEANINGS, and will send you my report. About this time in 1900 I didn't know any thing about bees. I bought a colony in March, 1901; bought more in fall; started with 6 in 1902; bad year—no honey, but increased to 15; bought more in fall; started with 45 in 1903; increased to 60; made 4950 lbs. extracted; sold it all at retail in San Antonio, except about 150 lbs. which I keep for home use. F. W. SANDAN.

San Antonio, Tex., Dec. 22.

The past season has been a very poor one for bees. From 125 colonies we extracted about 500 lbs. But some locations only a few miles away did much better. Year before last was also a poor season.

JAS. D. YANCEY.

Angleton, Tex., Jan. 6.

[Some of our reports seem to be a little *dis*couraging as well as *en*couraging—the above for instance; but as we want the truth of the matter, no difference what it is. —A. I. R.]

OUR HOMES,

BY A. I. ROOT.

Wherefore do ye spend money for that which is not bread? and your labor for that which satisfieth not?—Isa. 55 : 2.

As I dictate this, almost every man, woman, and child in the United States, and a great part of them, for that matter, in the whole wide world, knows about the Chicago horror where almost six hundred people, largely women and children, suffered a horrible death in something like ten minutes' time, and that, too, in the day time, right in that crowded city. It has been written up so fully in all its aspects that I need not go into details; and more prompt and vigorous measures are being taken now than perhaps the world ever saw before to prevent a repetition of such a disaster. It was a terrible lesson — perhaps the most terrible this country has ever known. Hundreds of vigorous editorials, not only in our dailies but even in our weekly periodicals, are coming up on every hand. But I have felt troubled and pained, in going over a great number of our home papers, to see how few even intimate that theaters and theater-going are any thing out of the way, even for professing Christians and followers of the Lord Jesus Christ. I am not sure that my own children would think it exactly right for me to make objection in public print to, say, our best class of theaters. The Chicago *Advance*, however, has ventured to suggest that "fire is not the only danger to be feared from our American theaters." It ventures to say in an editorial, "Some of them would be safer if they were burned up and burned down, and never rebuilt. A moral infection has been eating into them that is worse than fire." On another page, under the heading "We are Moved to Remark," they suggest that "the closing of some theaters makes it easier for some people to pay their rent and grocery bills." This latter expression alludes to the fact that the theaters of Chicago are at present closed until they can make changes in their construction so as to conform to the city ordinances.

Doubtless many of my readers will say, "Mr. Root, if *you* do not like theaters, and honestly disapprove of them, why not drop the matter and stay away, but at the same time let others who do not feel as you do exercise their own conscience in the matter, and go?"

Well, in view of the above I *have* kept still for a good many years. But I fear people misjudge me. I *do* like theaters — yes, and circuses – in one sense of the word. I am inclined to think there is hardly one among you who enjoys a first-class play with the keen relish that I do. A good many may say, "Why, if this is true, go by all means, and have a good time with the rest of us." But, my dear friends, I can honestly add, "I not only enjoy theaters, but I should enjoy with a huge relish a *glass of beer* also." It is a long time since I tasted any, it is true. The last time I had a good taste, partly by mistake, of real first class beer (that was not what they called it, but that was its right name nevertheless) I almost groaned in spirit because my conscience told me it was absolutely *wicked* for me to drink any thing that "hit the spot" as exactly as that did. Oh, yes! it is true that I am a sinner, like the rest of mankind, and a good deal of the time I constantly crave the things I know from past experience, as well as present, would do me harm.

I can not tell you in this short Home talk all the harm that theaters do, but I think I can give you some suggestions. A short time ago a book called David Harum made a big sensation. I am glad, however, it dropped out of sight about as quickly as it came into prominence. The book defended not only tobacco and beer, and theaters and circuses, but it suggested a new and better kind of religion (?) than that found in the old orthodox creeds. It brought the tears to the eye of the reader, almost if not quite, in telling what a humane act it was to take a boy to the circus for the first time in his life — a boy who had a hard and cruel guardian. Perhaps I may as well grant that it was a kind act in some senses of the word; but if that boy, during that day, got a glimpse and a craze for circuses, and, later on, theaters, until he became unsatisfied with the regular duties of life, perhaps we may say such a life as had fallen to his lot, the act of taking him to a circus may *not* have been such a kind one after all.

Later on there was something of a stir about a little book called "Miss Wiggins' Cabbage patch;" and some of my friends told me I would greatly enjoy reading it. I picked it up thinking it would have something to do with market-gardening. I threw it down in disgust; but when my youngest daughter urged me to read it clear through, saying it was a religious book, I finished it. I do not know but the majority of the world would consider it a missionary story. The writer tells how a woman of wealth took a poor family out of the slums and lifted them for a brief period from humdrum earth to the glitter of heaven by giving them as a treat a glimpse of an up-to-date theater for the first time in their lives. It It is true, she gave them an "outing" that was the event of their life, and something to talk about and think of perhaps ever afterward, even if they never attended another theater. But the main point before us is, did this glimpse into wealth among the high classes fit them any better for the every-day duties of life? Did it make them any happier about their daily tasks?* This wealthy missionary lady might have given this poor family—shall I say it?—a "good old time" by giving them some beer or whisky, or, to be more high toned, say a bottle or two of champagne. If judiciously administered I do not know but she might have made even the children happy in one sense of the word, for the time being, by the use of alcoholic stimulants; but would it have been a Christian act? David Harum did this very thing, and rejoiced over it. He got some old ladies, who were strict orthodox members of the church, to drinking champagne till they became "merry."

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* The glimpse our young people get of life as portrayed on the stage is not that of *real* life. It is a make-believe sort of life. It costs a great deal of money, and it gives no adequate returns. The *Sunday School Times*, in commenting on the objections to theater going says this: "On the very face of it, the pro-

No doubt, friends, you think I am putting the matter altogether too strongly. But consider for a moment the boys and girls of our nation who are working hard and striving for an education, or for advancement in life. These boys and girls have, most of them, a longing to see a real theatrical play. Many of them spend their hard earnings to go once in a while to a city theater, or, say, just once in a lifetime. Here in Medina we are thirty miles away from the city of Cleveland. An electric car during the season runs once a week to carry theater-goers and bring them back home. The pupils of our high school, and, if I am correct, many of the teachers, go to Cleveland to attend the theater. Some of them, as I happen to know, are overworked and in poor health. It is not only the money they can hardly spare, but the strength and endurance to take a trip of thirty miles, long past midnight, to get home. Would you expect a member of the Endeavor Society, for instance, and an earnest worker for the Lord Jesus Christ, to attend one of these theaters? If such a person did attend, would it add to or detract from his spirituality? I have tried it. Not only does my spirituality suffer when I go to a theater, but even the memory of it dims my love to God for a long time to come[*] My nearness to my Maker, and my close relationship to him and daily communion with him, or, in other words, my spirituality, is worth more to me than any thing else this whole world has to offer. I am *afraid* to go to theaters and circuses; I am *afraid* to drink beer; and I am afraid to join in with sabbath-breakers, because I know by experience that these things interfere with my communion with God, and mar my happiness and peace of mind.[†]

Some years ago while visiting a brother of mine in a distant State, Mrs. Root and I consented to go with him and his wife to a theater, because his wife was acquainted with one of the principal actors. The play was above reproach. There was not an indecent thing in it from begining to end. It was like a beautiful story, but there was no particular moral to it. The whole object and aim of that play was to amuse and entertain, and the tickets cost us $1.25 apiece. I shall have to confess I do not know now what it costs to attend a modern theater; but my feeling then and now in regard to it is, in the language of our text, "Wherefore do ye spend money for that which is not bread, and your labor for that which satisfieth not?" We were all professing Christians. Not only the admission fee, but the money it cost to put up at a hotel made it expensive for people of our means. Perhaps people do not figure the expense all around. Here is a clipping from one of our daily papers in regard to the present closing of the theaters in Chicago:

> The closing of the theaters in that city, and the general scare of the people, has been disastrous to business in that line. The railroads carried any number of theater-goers into Chicago, and in addition carried several thousand theatrical folks there in a season. Now all of this business has stopped, and the railroads are feeling the loss rather severely.

If our young people could be induced to forego the pleasures of the theater they would have just so much more money for something else — say getting an education. Some of you may tell me that our best theaters are, in the best sense, educational. Even if this is true I think it is an *expensive* kind of education. Better take the money and get your education in broad daylight, or, say, at an evening school that does not keep you up when the average boy and girl should be sound asleep. If you have read the papers you know something of the vast sums of money that are put into theaters and opera-houses.

The recent developments in regard to the tragedy at the Iroquois theater show us that different officials were paid good salaries for looking after the machinery of the theater in case of fire. There were police inspectors belonging to the city and that belonged to the theater, who received ample pay, but that was all. Investigation revealed an awful state of criminal neglect; and then the investigating committee found that *that* theater was not the only dangerous one. The ordinances of the city were not complied with in any respect; and this state of affairs not only confronts us in the management of theaters, but in the management of the entire affairs of city government. Men draw their pay and *do nothing*.

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fession of an actor stands all by itself, in demanding of its pursuer that his main purpose and endeavor shall be to seem what he is not; to appear something else than his real self; and herein lies the essential and irremediable evil of this profession."

And, again, "A man who is, perhaps, at heart a good and a true man and who has exceptional capabilities of good, devotes himself to seeming a bad man, and to exhibiting the semblance of the vilest passions or of the most abhorrent crimes. How can such a course fail of injury to a noble nature? Even if it in no degree lowered the tone of that nature, it inevitably restrains it within limitations all unworthy of its powers and destiny."

[*] A converted actor, after spending ten years of his life on the stage, writes to the *Sunday School Times* as follows: "The life is demoralizing and immor-alizing. It sends spirituality glimmering."

[†] Dear old Dr. Watts beautifully describes the point I wish to make, in one of his old hymns, when he says:

Is this vile world a friend to grace
To draw me on to God?

Now, instead of the word "vile" in the above place, supply "theatrical" and then you have it. Will attendance at theaters lead the young Christain on to God, or the contrary?

The man who stands over them, and should keep watch, draws his pay and—*does nothing*. The policemen do still worse. They get pay from the city for enforcing the law, and then get *more* pay from the whisky-sellers for *not* enforcing the law. How shall we train up the rising generation so as to have a better class — a more honest and God-fearing set of men and women, for the women are also responsible?

Now, this is a solemn and serious question. In God's name I ask you to answer me—answer me while you are thinking of the future welfare of your own boys and girls. Will sending them to the theaters, or helping them to attend theaters, make them *more* godly and upright?* Something comes in here that is not exactly in the line of theater-going; but it comes so near it, however, that I am going to give it as a fitting windup to this Home talk. It came to us in tract form.

A SCATHING INDICTMENT, BY REV. S. B. ALDERSON.

At a mass meeting in the Second Presbyterian Church of Portsmouth, O., on a recent sabbath afternoon, in the presence of over two hundred men a converted gambler and ex-saloon-keeper made the following statement, which has created a profound impression, and I herewith transmit it to your paper, that it may do good in a wider sphere:

"I have been in the saloon business, with a gambling-room attached, for the last four years, and claim to know something about what I am going to tell you. I do not believe that the gambling den is nearly so dangerous, nor does it do any thing like the same amount of harm, as the social card party in the home. I give this as my reason: In the gambling-room the windows are closed tight the curtains are pulled down; every thing is conducted secretly for fear of detection, and none but gamblers, as a rule, enter there; while in the parlor *all* have access to the game. children are permitted to watch it, young people are invited to partake in it. It is made attractive and alluring by giving prizes, serving refreshments, and adding high social enjoyments For my part I never could see the difference between playing for a piece of silver molded in the shape of money and silver molded in the shape of a cup or a thimble. The principle is the same; and whenever property changes hands over the luck of cards, no matter how small is the value of the prize, I believe it is gambling Perhaps you have never thought of it; but where do all the gamblers come from? They are not taught in the gambling dens. A 'greener,' unless he is a fool, never enters a gambling-hell because he knows that he will be fleeced out of every thing he possesses in less than fifteen minutes. He has learned somewhere else before he sets foot inside of such a place. When he has played in the parlor, in the social game of the home. and has become proficient enough to win prizes among his friends the next step with him is to seek out the gambling-room, for he has learned, and now counts upon his proficiency to hold his own.

"The saloon men and gamblers chuckle and smile when they read in the papers of the parlor games given by the ladies, for they know that, after a while, these same men will become the patrons of their business I say, then, the parlor game is the college where gamblers are made and educated. In the name of God, men, stop this business in your homes. Burn up your decks and wash your hands. The other day I overheard two ladies talking on the street. One said: 'I am going to have a card party. and am going to the store to get a pack of cards. Which are the best kind to get?' The other replied, 'Get the Angel card. It has an angel on the back.'

"Think," said he, "of dragging the pure angels of heaven into this infernal business."

After he had taken his seat another ex gambler, who led the men's meeting in the Second Presbyterian church the following sabbath, arose and said: "I endorse every word which the brother before me has just uttered. I was a gambler. I learned to play cards. not in the saloon not in my own home, but in the homes of my young friends who invited me to play with them and taught me how."

I send you these testimonials, hoping that you can use them. and that God will sound through them a note of warning to card-playing Christians. A number of men went home from that afternoon meeting and set up a new rule in their families. that never should another game be played inside their house; that their parlors should not become kindergartens for training young gamblers.

Tobacco, Cigarettes, etc.

TOBACCO AND CIGARETTES IN THE UNITED STATES.

Friend Root:—The clipping inclosed shows such an enormous annual increase of the consumption of cigars and cigarettes that I want to call your attention to it again—nearly 9 per cent of cigars and over 10 per cent of cigarettes. Does the membership of all the churches increase any thing near as fast? And is there any thing done by them to speak of to combat the evil? One of the churches here has had two successive pastors that have used tobacco, and one of them has had to enter a saloon and take his two boys by the collar to bring them out.

I think some, as I read our reform paper, that the tobacco-user need not wonder that his sons are drunkards or his daughters prostitutes. That, I know, is putting it rather strong; but something is needed. Even more Dowies would be welcome, so far as tobacco is concerned. To get rid of tobacco I would be willing to put up with a large—very large—amount of superstition. D. CUMMINS.

Conneaut, O., Dec. 12.

Below is the clipping referred to:

ARE WE SMOKING TOO MUCH?

The tobacco bill of the American people has grown to an enormous size. The people of the country use more tobacco and snuff every year. While the men spend more money on tobacco the women are doing a larger business with snuff than ever before. There were 310,654,639 pounds of tobacco and 18,840,747 pounds of snuff withdrawn from warehouses for consumption during the last fiscal year, not counting 8,345,217 pounds withdrawn for export, making a total of the two articles of 337 840,603 pounds used, against 328,464,428 pounds in the preceding fiscal year.

A total of 7,787,454,108 cigars was withdrawn for smoking, an increase of 679,437,181 over the preceding year. Cigarettes smoked during the last fiscal year numbered 3,251 883,330, an increase of 357,213,403 over the year before.

There were 26.423 cigar and 517 cigarette factories in operation. Virginia manufactured 460,702,344 cigars, using 4,096,602 pounds of tobacco North Carolina makes comparatively few cigars, putting most of her manufacture into plug and other tobaccos North Carolina for instance. used only 186,254 pounds of tobacco in cigars. and made only 9 423 036 cigars.

New Jersey produced more snuff than any other State, the total being 5,583,323 pounds, nearly one-third of all that was used.—Washington *Star*.

Of course, the question arises, "Are the figures given above true?" As the periodical quoted comes from Washington, the seat of government, I presume it is authority. We have not copied the whole article as given by the Washington *Star*, but there is no evidence in it that the writer was feeling troubled about it. He simply gave the facts and figures, without comment. My impression was that cigarettes were on the decrease; and, if I remember correctly, there is at least one State in our Union that has banished by law the manufacture of cigarettes. The statement that there are 517 factories making cigarettes in this country is, I confess, quite a surprise to me. God forbid that it should be true, as friend C. hints, that the use of tobacco is increasing among ministers of the gospel. The agricultural papers, as a rule, are continually holding up warnings; and I am sure the use of tobacco is not on the increase among the readers of our *bee-journals.* How is it, brethren?

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* After the above was in type I found the following in a later copy of the Sunday School *Times*:

The following letter from a Chicago pastor, received just as this issue is closing, is of timely significance: "The Iroquois Theater horror has shaken our city as it is seldom stirred by any interest. The theater question, morally considered, has become a living question with hundreds of Christian people who frequent such places. Several have intimated to me that they should never go again—not solely through fear, but through an awakened conscience. Not only in Chicago, but the country over, the hour is ripe for gentle and tactful dealing with theater-going Christians."

It may be a good plan to have the law of Ohio read over occasionally so that we may remember what it is.

> Be it enacted by the General Assembly of the State of Ohio, That whoever sells, gives, or furnishes to any minor under sixteen years of age any cigarette, cigarette-wrapper, or any substitute for either, or any cigar or tobacco, upon conviction thereof shall be fined not less than twenty-five dollars nor more than one hundred dollars, or imprisoned not less than two nor more than thirty days, or both for the first offense, and fined not less than fifty dollars nor more than three hundred dollars, and imprisoned not less than five nor more than sixty days, for the second or any subsequent offense.

Now let me copy from one of our great Cleveland dailies, the *Press.* They, surely, are not extreme in this matter:

> The effects of cigarette-using by young boys would be a startling revelation to many of their mothers if they understood the alarming proportions to which it has grown in this country.
>
> A magistrate in Harlem court, New York, made the following significant declaration the other day:
>
> *Yesterday I had before me 35 boy prisoners. Thirty-three of them were confirmed cigarette smokers To-day, from a reliable source, I have made the grewsome discovery that two of the largest cigarette manufacturers in this country soak their product in a weak solution of opium.*
>
> The fact that out of 35 prisoners 33 smoked cigarettes might seem to indicate some direct connection between cigarettes and crime.
>
> And when it is announced on authority that most cigarettes are doped with opium, this connection is not hard to understand.
>
> The cigarette is to young boys very much like what whisky is to grown men. If it does not directly cause crime it at least accompanies it in nine cases out of ten.
>
> It must be universally admitted that the majority of young boys addicted to cigarettes are generally regarded as bad boys. It is an addiction that does not ally itself with the high virtues of manly youth. It leads to bad associations and bad environment. He must be a strange boy indeed who can derive moral and physical good from cigarettes.
>
> Opium is like whisky — it creates an increasing appetite that grows with what it feeds upon. Even pure tobacco has the same effect
>
> The growing boy who lets tobacco and opium get a hold upon his senses is never long in coming under the domination of whisky too.
>
> Tobacco is the boy's easiest and most direct road to whisky. When opium is added, the young man's chance of resisting the combined forces and escaping physical mental. and moral harm is slim indeed.
>
> It is a deadly combination in most cases. There are few, if any, cases in which it is not more or less harmful Stomach and nerves and will power weakened for life is the common result, even though the habits be finally mastered.

May God be praised for the fact that President Roosevelt does not use tobacco in any form. His example here should be a beacon-light to the boys of the whole world.

LOCAL PROHIBITION IN TEXAS.

We clip the following from the *Independent* for Jan. 14:

> Very interesting statistics of prohibition and crime are reported from Texas, where the local-option law assures that prohibition of the saloons shall be enacted only where it can be enforced by public sentiment. There are in that State 23 prohibition counties that have no convicts in the penitentiary, and 9 with only 1 convict each In 39 prohibition counties there are only 23 convicts in all. San Jacinto County alone, with a population of 10,277 and the open saloon, has 25 convicts, and Montgomery, with open saloons and 17,067 population, has 21 convicts in the State prison; and these are two poor counties in the piney woods. Collin County with 50 000 people and no saloons, has 20 convicts; Lamar County, with 48,000 and saloons, has 96. A large part of Texas has no saloons, and has one convict in 1500 of population, while the territory with saloons has one convict for every 500 of population. Such figures teach a lesson.

I hope our readers will read the above over and over again, just as I have done; and then I hope the whole United States, if not the rest of the world, will wake up to the tremendous moral it gives us. Why will any State, any county, any town, or any nation on the face of the earth, side with the wets with the above facts staring them in the face? It is not Texas alone that has made or is making the discovery. Every State and every community in the United States, or, you might say, in the world, must own up, if they are honest, that the lesson taught us in the above extract is a true one. No saloons, one convict in every 1500 population; *with* saloons, one convict to every *500.* Just now we are told by the Chicago *Advance* that the city of Chicago has the finest-equipped free hospital in all the world, and the institution is already bearing good fruit. Our large cities are making great progress in warding off contagious diseases, and in taking every precaution to save human health and life; but when it comes to the whisky business, or even the cigarette business, our great men—at least a great part of them—seem to be suffering from a peculiar kind of paralysis. Our railway companies and factories are coming to life, and shaking off the paralysis—at least to some extent. What is the matter with our governors, mayors, and policemen, and all the others who are looking after the welfare of the masses?

ELECTROPOISE, OXYDONOR, ETC., AGAIN.

Mr. Root:—I am a more or less devoted student of physical culture, and take the magazine of that name. It was, therefore, with sorrow that I noted in a recent issue an advertisement by the Electropoise people. I immediately wrote to the publishers, calling their attention to these people, their ways, etc; and as I know you to have been on the track of these fellows for a good many years, you will be doing humanity a good deed by furnishing all the information at your command. The Electropoise people got $20.00 out of me some years ago before you began showing them up, and all the benefit I derived was the experience.

Hinchman, Mich. E. A. BOAL.

[Thanks for your "experience," friend Boal. I have sent the publishers of *Physical Culture* some facts in regard to the matter. Just now it is only once in a great while that Electropoise or Oxydonor finds a periodical that will accept their advertisement; and it behooves us all to make a protest whenever we meet with any remnant in regard to any of our home journals. Friend Boal, you did exactly the right thing.—A. I. R.]

NOTES OF TRAVEL

BY A. I. ROOT.

CATALINA ISLAND.

Everybody said, "O Mr. Root! you must not neglect going over to Catalina Island, and taking a trip in the glass-bottom boats."

When I asked more about it they only answered, "You go and see, and then write it up for us."

I told you something about the crowd of seasick bee-keepers on the way over to the island, on the steamer. When Dr. Miller and I secured a glass-bottom boat and started out to see the wonders, we were both too seasick to feel very much enthusiasm, especially in regard to the scenery at the bottom of the ocean. The glass-bottom boat does not differ very much from ordinary boats, only right along in the middle there is a big square box, and this box has a glass bottom to it. The sheet of glass is down as low as the lowest part of the boat, or pretty nearly as low. Of course, the boatman has to be very careful that a rock does not bump this sheet of glass, and not only cost him a whole lot of money, but perhaps send the whole crowd down among the fishes and "scenery." The railing around the box is just high enough so you can sit on a seat and lean over, looking down into a shallow well, as it were. When the waves are still, they are like a large looking-glass — there is no need of a glass bottom to the boat; but this glass bottom makes the surface of the water *always* quiet; and whenever you find it necessary to see clear down to the bottom of any clear piece of water, such arrangement will be a great help.

When I was in Bermuda they took a common wooden box and puttied a pane of glass over the bottom to make it water-tight. By holding this over the side of the boat one could see down into the water to a great depth. It simply quiets the rippling of the waves on the surface. With this explanation I will tell you what the doctor and I saw.

All around Catalina Island there is a wonderful luxuriance of seaweeds. These aquatic plants that grow in the salt water are not only wonderful variations of the most beautiful fernlike foliage, but the colors are as gorgeous as the most lovely flowers; and some of these seaweeds are, I think, fully as large as ordinary apple-trees. Imagine yourself sailing right over the top of an apple-orchard in full bloom in May or June, and then anon imagine hundreds of other varieties of beautiful exotic plants waving in the breeze, with all the spaces between the plants filled with birds of the most georgeous plumage, and you have something a little like it. Instead of a breeze, however, through the tree-tops, it is currents of water that sway the branches more gracefully than the wind ever did; and instead of the birds it is fishes of wonderful brilliancy, of all colors of the rainbow. There are gold and silver fish; there are sea-urchins and sea-reptiles; there are things you never dreamed of, and all seem to be in harmony. The fishes glide among the branches, and come right up close to the glass bottom. There are tiny fishes not larger than cucumber seeds; and there are some monsters which, if not exactly large enough to swallow you whole, frighten you with their cool indifference to your nearness.

Some of you have, perhaps, looked over the pressed specimens of the wonderful seaweeds gathered out of the salt water along Catalina Island. When we got ashore we had time, before the steamer left, to go through hurriedly a wonderful salt-water aquarium. This contains specimens of all the strange monsters we saw through the bottom of the boat, and a guide stood ready to answer all questions an inquisitive Yankee could ask him; and I tell you there are some wonderful things for us to learn about the fishes that live and move away down at the bottom of the sea. There are queer creatures that seem to live and thrive on the line that divides plant from animal life; and there are creatures so hideous that the memory of them might give you the nightmare — that is, if you are in the habit of having nightmare dreams.

Before taking the trip back, the doctor and I decided we would try some dinner, as it was long past the regular dinner time. And here again we were agreeably surprised by having served to us a delicious fish like some we had seen through that glass-bottom boat; and in my case, at least, that dinner of fish "hit the spot" exactly, in spite of the seasickness that had been hanging around. Yes, I think it cured it for the time being.

On the way back our experience was varied by a wonderful treat in the shape of fishes that not only skimmed the water *below* the surface, but, just for the fun of it, they occasionally skimmed the air *above* it. Several times they came so near the steamer that one could almost catch the expression of their eyes. So far as I could learn, these fish never flap their glossy wings while in the air. The passengers I questioned thought the fish acquired sufficient momentum while in the water to get out into the air and sail about in most graceful curves, sometimes for almost or quite a minute at a time. This seems to me almost incredible, for they often take a curve and go up a rod or more above the surface, and then sail about like a hawk with its wings motionless. The brilliant crystal wings sparkle in the sunlight like mirrors; and while I enjoyed the sight so much I wondered that more had not been written about them.

We saw porpoises in abundance, and I think something that somebody said was a shark; and it was my fortune once to see a whale blow his fountain of water; and I got a little glimpse of his great bulky body In fact, I was so highly entertained that I almost forgot to be seasick. I really fared better than some of the bee-keepers who sat close by. Perhaps they would prefer not to have me mention their names in this connection, for peculiar reasons of their own.

Now, when you go to California do not think of missing Catalina Island and the glass-bottom boats.

HIGH PRESSURE
GARDENING
BY
A. I. ROOT

THE SLOE PLUM; MORE ABOUT IT, BY E. C. GREEN, OF MEDINA, O.

In GLEANINGS for Nov. 1 Mr Root gave a very interesting account of this plum, which is, as he said, one of our wild or native plums. As usual his estimate was not far out of the way, for this is what J. W. Kerr, of Maryland, one of the leading authorities on the native plum, says of it: "The provident housewife finds this type of fruit unsurpassed for culinary uses of the plum. In any form that the Damson satisfies cookery ambition, the fruit of this group finds enduring favor. No unsightly black knot to enfeeble the trees; no uncertainty about a crop. Twenty-five years of experience leads me to look with about as much certainty to the annual production of a crop as to the coming and going of the seasons; and the planter who omits them from his family orchard is not living up to his license."

The group which Mr. Kerr speaks of is known as the Wayland, to which the variety known locally as the sloe belongs This plum was brought to this county some thirty years ago by Mr E Triffit, from Illinois. Just how it got the name I do not know; but there is another plum not nearly as good, that has a prior claim to the name.

I have seen the sloe in fruit for a number of years, and have had it fruiting in my own orchard for the past two years and there is no doubt that it is almost identical with the dark-red variety of the Wayland group which I have seen fruiting in the orchards of the Ohio experiment station. The Wayland group of plums is among the most vigorous and productive of our native plums The fruit varies from a light yellow to a dark red Nearly all the varieties are late in season. It may have been sold as the "Japan plum," as Mr. Root said; but the real Japan plum is a distinct species of which a large number of varieties have been introduced in the past thirty years But our native plum is an exceedingly interesting fruit. which varies greatly in growth and fruit. So great is their variation that they have been successfully hybridized with the peach on one hand and on the other with the cherry.

E. C. GREEN.

It is true there may be some who think our large cultivated varieties may be far ahead of this smaller-sized though handsome plum; but when we consider that it is absolutely proof (or at least it is here in our locality) against curculio, rot, and every thing else, so far as I know—is a rank grower, bears every year—I think we can afford to have a tree or two. It has, too, a peculiar wild flavor that to me is more enticing than any other plum in the world. Very likely it is largely owing to the fact that a wild plum-tree grew near my boyhood home, producing plums very much like the sloe plum. Every time I taste it, it makes me feel like being a boy again.

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Cabbage and Cauliflower Seed
IS UNEQUALED!

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I consider it superior to imported seed.
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H. A. March
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If you can raise such seed as you sent to us, on Puget Sound, there will be no more call for imported seed.
GEO. COOTE, State Ag. Col., Corvallas, Ore.

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University of Minn, Ag Ex. Station.
H. A. March:—It seems almost superfluous for me to add that I have very much faith in the value of Puget Sound cauliflower and cabbage seed, since, as you know several years ago I made quite a trial, and gave you a very favorable report. SAMUEL B. GREEN, Horticulturist.

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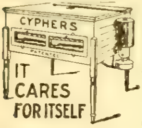

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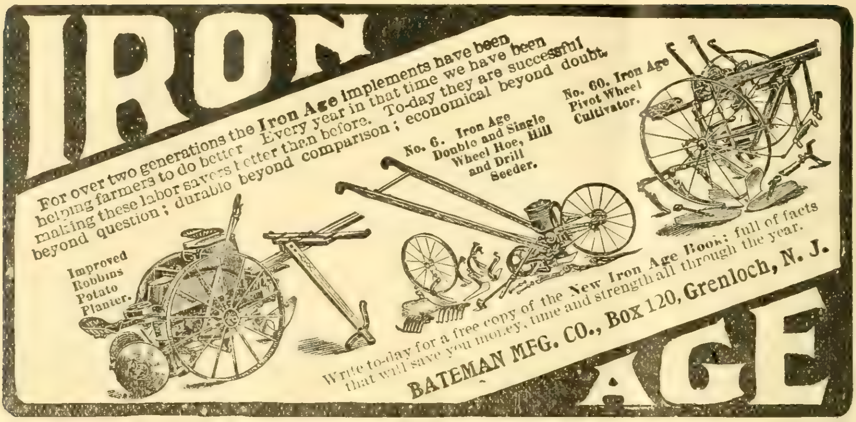
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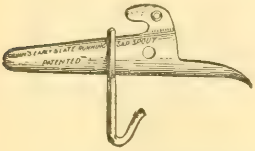
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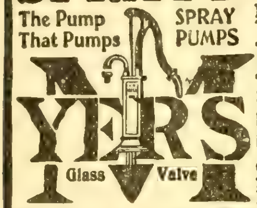
SPRAY PUMPS



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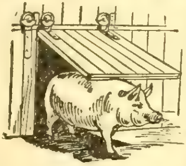

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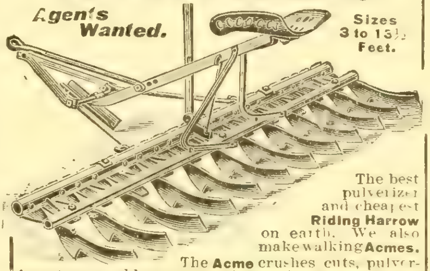

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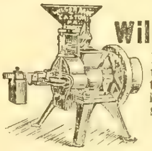

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Our Specialty for over 30 Years has been the Manufacture of all Kinds of

BEE-KEEPERS' SUPPLIES

Including Bee-Hives and Frames, Section Honey-Boxes, Shipping-Cases, Honey and Wax Extractors, Bee-Smokers, Bee-Comb Foundation, Comb-Foundation Machines, Comb-Foundation Fasteners, Perforated Queen-Excluders, etc.

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In addition to the above mentioned we have hundreds of others who handle our goods in large or small lots, some of them handling specialties only, like Root's Cowan Extractor, Root's Weed Comb Foundation, etc. When you want standard Bee Supplies place your order with any of the agents or branch houses mentioned on this page, or write our home office for name of agent nearest you.

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DON'T WAIT any LONGER to Buy.

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Write to us to day and say what you want and get our prices. New Catalog will soon be out. It is free. We also handle **HOOSIER INCUBATORS AND BROODERS.**

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The Best Bee-goods in the World

are no better than those we make, and the chances are that they are not so good. If you buy of us

You will not be Disappointed. We are undersold by no one.

Send for new catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cts. a year; especially for beginners.

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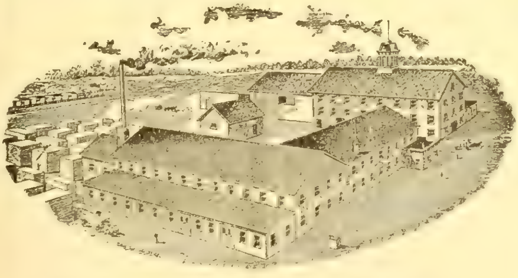

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3 per cent Discount during January.

BEE - SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

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Shugart & Ouren, Council Bluffs, Iowa.
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Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Second-hand L. 10 frame hives.
S. C. JONES, Alplaus, N. Y.

WANTED.—To sell or exchange, new feed-mill, cob-crusher, etc., for alfalfa and clover seed, bees and supplies, or will take bees on shares.
J. F. KUNSMAN, Lower Saucon, Pa.

WANTED—To exchange Italian queens for incubators. Must be in good condition. Let me know what you have.
J. F. MICHAEL,
Rt. No. 1, Winchester, Ind.

WANTED.—A partner in the bee business in a territory that will support 5000 colonies; have 900 colonies to start with.
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WANTED.—A position as book keeper; have had some experience in bee-keeping; wages expected, $40 per month. GERNAL SLAWSON Valparaiso, Ind.
Room 40. Com'l Hall

WANTED.—Steady position by young man, 21, in apiary. Will also do other work. Want to learn the bee business. Have had some experience. State wages you can pay. Correspondence solicited.
F. L. RIGGS, 7 Spring St., Nashua, N. H.

WANTED.—A man who is able to take full charge of an apiary, and manage it successfully.
JAMES MCNEIL, Hudson, N. Y.

WANTED.—Catalogs of bee supplies
S. G. KILGORE, London, O.

WANTED.—A competent bee man Must be sober and industrious. I will pay good wages for such a man.
J. F. AITKEN, Reno, Nevada.

WANTED—To exchange 8-frame hives, extractor, and uncapping can, for honey.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Second hand or new dovetailed hives. State what you have, and lowest price.
H. C. DAGGERT, R. F. D. No. 1, Mt. Carroll, Ill.

WHO WANTS to get my 30 years' experience with bees in 7 months? I prefer a farm-raised hand, and will want him to work on the farm when there is no bee-work Must be familiar with bees. Also 220 colonies to let on shares; ½ for box honey. Give experience, and wages wanted
W. L. COGGSHALL, Groton, N. Y.

WANTED.—To sell Victor incubator and brooder. Good as new, used only one time. $10.00 for the outfit. or will exchange for comb honey in 24 lb. cases, or offers.
E. T. FLANAGAN, R. F. D No. 2, Belleville, Ill.

WANTED.—Assistant apiarist. State qualifications and wages.
W. HICKOX, Berthoud, Colo.

WANTED—An experienced man to work with bees.
CHEEK & WALLINGER, Las Animas, Colo.

WANTED.—A Barnes machine with cutterheads, to cut from 1/16 inch to 1½ in.; two 12-in. saws. 1 rip, 1 cut-off.
G. C. CARTER, Freshwater, Va.

WANTED—L. combs for cash or 10-frame fence supers. Supers for sale cheap.
F. W. LESSER, Johnstown, N. Y.

Addresses Wanted.

WANTED. Addresses of parties interested in poultry supplies.
GRIGGS BROS
523 Monroe St., Toledo, O.

WANTED.—Addresses of bee keepers who use chaff hives.
GEO E. HILTON, Fremont, Mich.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1 00 per month; $10 00 per year. Daily, except Monday.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—To furnish you with groceries at reduced prices. Send for our free catalog
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FOR SALE—8-frame 1½-story hives made of Michigan white pine. Root's frames inside. Five $5.00; 10, $9.00. Nailed and painted, ready for bees, $1.50 Sections until April 1st at last year's prices. Send for list.
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FOR SALE.—5 colonies of bees packed in chaff on summer stands; also 200 lbs of comb honey.
Route 3. H. WILBER, Morenci, Mich.

FOR SALE.—Three Incubators; fine Black Minorca Cockrels, 75c to $1 each; tumblered honey, 80c per doz. Bargains.
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FOR SALE—A limited amount of ginseng sets.
C. G. MARSH, Kirkwood, Broome Co., N. Y.

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SLATE HIVE COVERS—I will furnish most durable and perfect slate hive-covers, 17x21 inches, at $15 00 per 100. 13x21 inches, $13 00 per 100 In lots of 20, 16 and 14 cts. each. Large lots at special prices.
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BARGAINS IN PLANTS AND TREES

worth double the money, by mail postpaid.

200 Marie Strawberry	$1 00	20 Wilder Currants	$1 00
100 King Raspberry	1 00	20 Fay "	1 00
100 Ea. King Blackberry	1 00	20 Elberta Peach	1 00
100 Ohmer "	1 00	10 Pear assorted	1 00
20 Niagara Grapes	1 00	10 Cherry assorted	1 00
20 Worden "	1 00	15 Apples "	1 00

Everything for the fruit grower best varieties cheap. Free catalog of great bargains—3 new strawberry plants free for 6 names of fruit growers and 2c stamp

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4000,000 PEACH-TREES,

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases, and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address **J. C. HALE, Winchester, Tenn.**

FENCE! ***STRONGEST MADE.*** Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO.
Box 101, Winchester, Indiana, U. S. A.

Walter S. Pouder. **Established 1889.**

Bee=keepers' Supplies.

Distributor of Root's Goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Co., and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey=boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee Smokers, Bee=veils, Pouder Honey=jars,

.........and, in fact, everything used by Bee-keepers........

Headquarters in the West for the Danzenbaker Hive which is so rapidly gaining in popularity among our most successful comb-honey producers. Investigate its merits.

No order too small, and none too large. "Satisfaction guaranteed" goes with every shipment. A pleased customer is the best advertisement that my business has ever had. Remember that it is always a pleasure to respond promptly to any communication pertaining to the bee or honey industry.

Beeswax Wanted.--I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package.

Take Notice.--Finest Comb and Extracted Honey on hand at all times. I handle several carloads during a season, and if your local demand exceeds your supply I can furnish you promptly, and at prices that will justify you in handling it. If interested write for my special price list of honey.

My Illustrated Catalog is mailed free to every applicant. Address your communications to

WALTER S. POUDER,

513=515 Massachusetts Ave., - INDIANAPOLIS, IND.

SPECIAL NOTICE

Special Notices By Our Business Manager

An editorial in reply to Mr. Hutchinson's article in the *Review* on the subject of home-made vs. factory-made hives was crowded out for lack of room. It will appear in our next issue. For the present I will say that, on the *same quality of lumber* and the *same equipment*, the manufacturer can compete with home-made prices.

FEBRUARY DISCOUNT 2 PER CENT.

The discount for cash orders this month is two per cent. After this month, no discount.

MAPLE-SUGAR MAKERS' SUPPLIES.

We are prepared to furnish buckets shipped direct from factory at Toledo, Ohio, or from Western New York. Prices on application. Record spouts from here, $1.00 per 100; $9.00 per 1000; quart cans, at a special price to reduce present stock, $5 50 per 100; $50 per 1000; ½-gallon cans, $8 50 per 100; 1 gallon cans, $10.50 per 100. These are special prices, just for the sugar-making season only, to those ordering from this notice and mentioning the same in the order.

BUSINESS BOOMING.

Orders continue to crowd us to the extreme. Although we have shipped to our dealers and agents so far this year fifteen cars more than we had up to the same date last year, we are over thirty cars behind on orders. In the five days of this week we have received orders for eight carloads, and have shipped four. Some of our friends will need to exercise considerable patience before they receive all of the goods for which we have orders entered. Small shipments are going out with reasonable promptness, and we are trying to send the carloads where they are needed most first. Many of the orders are very much in advance of any former year anticipating spring business. The demand for goods from users is in excess of former years, many taking advantage of early-order discounts. We hear from other manufacturers that they are also crowded with orders.

EXTRACTED HONEY.

We keep on hand a large stock of extracted honey from different sources, and are prepared to supply at the prices shown below. The following flavors are usually in stock.

PACKAGES.

By far the largest part of our honey comes put up in the 60 lb. square tin cans, two cans in a case. We also get some in kegs and barrels We agree to furnish it only in such packages as we happen to have. Unless you find price quoted for different packages, it is understood that we furnish only in 5-gallon and 1-gallon cans.

PRICES.—F. O. B. MEDINA, CHICAGO, OR PHILADELPHIA

Kind.	In single five-gallon cans.	1 case of 2 five-gallon cans.	10 cases of 2 five-gallon cans.	In one-gallon screw-top cans.	Case of 6 or 10 one-gallon cans.
	per lb	per lb	per lb	per gal	per gal
White Clover	8½	8	7½	1 20	1 10
Basswood	8½	8	7½	1 20	1 10
Alfalfa	8	7½	7	1 20	1 10
Orange	7	6½	6	1 10	1 00
Amber.........	6½	6	5½	1 00	90

Special Notices by A. I. Root.

MIXING BUSINESS LETTERS WITH REPORTS ENCOURAGING, ETC.

When I asked for Reports Encouraging I suggested that they be put on a postal card; but a good many of the friends take several sheets of paper, and, not only that, mix business, orders for goods, etc., all along through it. For this reason a good many reports and suggestions never get into print Please put them on separate pieces of paper with full name and address on each; and get your reports down about postal size if you want them all to get into print.

PRICES ON CLOVER AND OTHER HONEY-PLANT SEEDS AT THE PRESENT DATE.

Just now alsike clover, medium clover, peavine or mammoth red clover, and alfalfa, are all one price—namely, $9 00 per bushel; ½ bushel, $4.75; peck, $2.50; 1 lb., 18 cts.; by mail, 28 cts. All the above are strictly first-class.

SWEET CLOVER (YELLOW OR WHITE).

We have on hand a large supply of these clover seeds. Prices as follows:

	1 lb.	10 lbs.	100 lbs.
Sweet Clover, white.........	12	$1.00	$ 8.00
" " " (hulled)....	20	1 70	15.00
" " yellow..............	20	1.70	15.00

If sent by mail add 10c per lb. to these prices.

JAPANESE BUCKWHEAT.

Trial packet, 4 ounces, by mail, postpaid, 5c; 1 lb. by mail postpaid, 15c; peck, 35c; ½ bushel, 65c: bushel, $1 25; 2 bushels, $2.25. These prices include bag to ship it in.

Prices and descriptions of all honey-plant seeds mailed free on application.

Greider's Fine Catalog

of Prize-Winning Poultry

for 1904. This book is printed in different colors. Contains a Fine Chromo of lifelike fowls suitable for framing. It illustrates and describes 60 varieties of poultry, ducks, geese, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and such information as is of much use to all who keep chickens. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.

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Queen-Rearing Outfits

In successful use for over three years; highly recommended. Full explanation of cup-compressors, wooden cups, nurseries, cell-bars, fertilizing boxes introducing-cages, with directions, free. **Queens** from six-band Italian stock, $1 each. E. L. PRATT,

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For Sale.—My apiary outfit consisting of Dovetailed-hive bodies filled with frames of comb: honey and wax extractors, comb-buckets, and other fixtures. Will fill orders as received until sold. Saw-mill well located almost new. Also good farm well located. All for sale cheap. B. J. Cross, Auburn, Alabama.

Wanted.—A position as assistant apiarist, by a young man have had three years' experience; can furnish reference. State wages.

P. Rasmussen, Box 88, Bellaire, Mich.

1884 1904

Twenty Years

Of experience in the manufacture of Hives and Supplies, and a little longer in Queen-rearing, with good facilities, will enable us to fill your orders with satisfaction and promptness. :: Let us send you our 64-page Catalog. . . .

J. M. JENKINS,

WETUMPKA, = = ALABAMA.

2 Per Cent Discount

During the Month of February

Send for our 1904 catalogue and price list. Our hives are perfect workmanship and material.

Take Advantage of Early Discounts

and send your orders in NOW. By so doing you SAVE MONEY AND SECURE PROMPT SHIPMENTS

Page & Lyon Mfg. Co.

New London, Wisconsin, U. S. A.

Dittmer's Foundation

RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the **Cleanest and Purest,** and in all respects the best and most desirable. Send for samples. Working wax into foundation, for cash, a specialty.
Beeswax always wanted at **Highest Price.**
A Full Line of Supplies, Retail and Wholesale.
Send at once for catalog, with prices and discounts.
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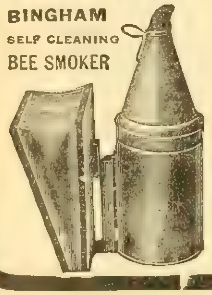
GUS. DITTMER, Augusta, Wisconsin

ORIGINAL PATENT BINGHAM SMOKERS.



4-inch heavy tin Smoke Engine, 381 holes in steel fire-grate, postpaid	$1 50
3½-inch Doctor, 286 holes in grate	1 10
3-inch Conqueror, 220 holes in grate	1 00
2½ inch Large, 170 holes in grate	90
2-inch Wonder, 110 holes in grate	65
4-inch heavy Copper, 381 holes in grate	2 00

Twenty-five years the only patents granted, most improved, standard, and best in the world. *Never a complaint.* All have shields, bent cup, and coil-wire handles. Never go out, or throw sparks or soot. Bingham Smokers are not like other smokers. I would like to show you the many letters I have, but will summarize them below: " Don't see how they could be improved;" "Best I ever used:" "Perfect satisfaction:" "Perfection itself." The latest unadvertised patent, dated 1903, sent by the inventor on receipt of 10c above regular prices of the 3 larger sizes of smokers.

T. F. BINGHAM, FARWELL, MICH.

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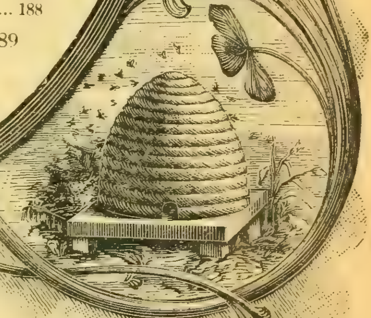

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MEDINA OHIO
U.S.A.

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LEWIS C. &
A. G. WOODMAN
Grand Rapids, - Mich.

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NOW IN STORAGE
AWAITING YOUR ORDERS

Consisting of a full line of

STANDARD GOODS

Danzenbaker Hives, Root's Dov'd Hives, Root's Chaff Hives, Hilton Chaff Hives, Hilton T-Supers Cowan Extractors, Corneil Smokers, The Doolittle Wax-extractors, and Alley Traps, etc., etc.

As well as Weed Foundation, Section Boxes, Section-presses, Enamel - cloth, Brushes, Honey-boards, Tin Rabbits, Taps for cutting-screw-holes, and Manum Swarm-catchers.

Write for descriptive matter regarding Hilton Chaff Hives and T-supers, with prices on the number you think of purchasing.

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The Danzenbaker Hive

The Comb-honey Hive.

Root's Good's sold in Michigan by M. H HUNT & SON. Send for Catalog.

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Quality--You can produce better-looking honey.
Quantity--You can produce more of it.
Price--You can get more per pound for it.

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Please send to my address Danzenbaker's "Facts About Bees," telling about the Danzenbaker hive.

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Address...

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Bell Branch, - Mich.

Headquarters for

BEE-SUPPLIES.

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Large, complete stock now ready; liberal discount on early orders; insure you prompt service and lowest freight rates. Give me your orders and you will save money. Catalog free—send for same.

SEEDS OF DIFFERENT HONEY-PLANTS.

Let me book your order for QUEENS (see catalog, page 29) as stock for early orders is limited. NUCLEI ready to supply, beginning June.

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Warehouse, Freeman and Central Aves.

CINCINNATI, OHIO.

Honey Market.

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Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Kansas City.—Another cut in the price of comb honey since our last quotations. Strictly No. 1 white comb was sold at $2 25 per case of 24 sections. We are holding our stock at $2 50, with the hopes of a better market; but if shipments continue we shall have to let go with the rest. There is light demand for the supply of extracted, at 6½ @ 7 for white; amber, 5½ @ 6. Beeswax in demand at 30. C. C. Clemons & Co.,
Feb. 8. Kansas City, Mo.

Boston.—There is but little change to note in our honey market Strictly fancy Eastern honey is scarce, and Western honey will not bring as much here. We quote fancy white in glass-front cases at 16; No. 1, 15. Supply is ample, and demand light at this time. Extracted, water white, 8; light amber, 7 @ 8, with but little call for the dark variety.
Blake, Scott & Lee,
Feb. 8. Boston, Mass.

Chicago.—The demand is better for all grades of honey than at any time since beginning of December. Stocks are now being reduced, but at the same time prices are easy. Many have had it so long that they are anxious to make sales. No. 1 to fancy white comb sells at 12 @ 13; amber grades, 10 @ 11; dark, etc., 9 @ 10; white extracted, 6 @ 7, according to quality, kind, and flavor; amber, 5 @ 6. Beeswax, 30
R. A. Burnett & Co.,
Feb. 8. Chicago, Ill.

St. Louis—The honey trade rules very dull on comb as well as on extracted. Quotations are more or less nominal at $2.75 per case of 24 sections for fancy; A No. 1, $2 40 @ $2 50 per case; No. 1, $2.00 @ $2. 25; No. 2, $1.65@ $1.75. Extracted in barrels, 5½ per lb. In 5-gallon cans, 6 @ 6½. No. 3 comb honey unsalable in this market. R. Hartmann & Co.,
Feb. 8. St. Louis, Mo.

Toronto.—There is no change to speak of. There seems to be a very good demand for honey in small quantities among the storekeepers, but not a great deal moving in a wholesale way. Several reports from outside towns indicate that quite a supply of extracted honey is yet unsold. No change in prices.
E. Grainger & Co.,
Feb. 9. Toronto, Ont.

Philadelphia.—There has been a decided decline in comb honey since last quotations. Bee-men who have little lots held back, and are afraid they can not dispose of it before warm weather, are shipping it in, selling at any price they can get breaking the market decidedly. We would quote fancy white at 14@15; No. 1 at 12@13; amber, 10. Extracted, white, 6@7; amber, 5@6. Beeswax, 31. We are producers of honey and do not handle on commission.
Wm. A. Selser,
Feb. 10. Philadelphia, Pa.

Toledo.—The market on honey at this writing is quiet, as is usual at this time of the year, and prices have weakened; but we are making sales at the following prices: Fancy white clover, in no-drip cases, 15; No. 1, 14; buckwheat, 13; not much demand for amber. Extracted, white clover, in barrels, 6½; cans, 7½ @8; amber, barrels, 6 cts; cans, 6½@7. Beeswax, 28@ 30. Griggs Brothers,
Feb. 8. Toledo, O.

Cincinnati.—There is a fair demand for honey, but the nearing end of the season for comb honey with large supply has pressed the prices. Fancy white, 13@ 14. Extracted, amber, in barrels, 5¼@5¾; cans ½ more alfalfa, water-white, 6@6½, fancy white clover, 7½@8 Beeswax, 30. C. H. W. Weber,
Feb. 9. Cincinnati, O.

Albany.—Honey demand is very light, owing to this unprecedentedly continued cold weather for the last three months. Quotations are nominal on comb honey. We look for better demand after Lent begins, if weather warms up. Extracted is in demand, especially granulated. Buckwheat, for Jewish holiday trade, 6@6½. MacDougal & Co.,
Feb. 10. 375 Broadway, Albany, N. Y.

Buffalo.—The demand for honey is very slow; but very little strained honey on the market. Comb honey is quite plentiful. Fancy comb honey, 13@14; A No. 1, 12½@13; No. 1, 12@12½; No. 2, 11@12; No. 3, 10@11; amber, 11@12; dark, 9@10; white extracted, 6@6½; dark, 5@5½. Beeswax, 30@ 32.
W. C. Townsend,
Feb. 11. Buffalo, N. Y.

For Sale.—I have a few more cases of comb honey (mostly buckwheat), which I will offer at a reduced price to close out.
N. L. Stevens, R. D 18, Moravia, N. Y.

For Sale.—100 cases fancy clover, no-drip; 100 cases No. 1 white, strawed carrier; straight 14-oz. sections, price $2.75. J. C Stewart, Hopkins, Mo.
Reference, Farmers' Bank.

For Sale.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.
G. W. Wilson, R. R. No. 1, Viola, Wis.

For Sale.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. Emil J. Baxter,
Nauvoo, Hancock Co., Ill.

For Sale.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

For Sale.—5000 lbs. of fine comb and extracted honey, mostly all comb. L. Werner,
Box 387. Edwardsville, Ill.

For Sale.—Fancy basswood and white-clover honey; 60 lb cans, 8c; 2 cans or more, 7½c; bbls , 7½c.
E. R. Pahl & Co., 294 Broadway, Milwaukee, Wis.

For Sale.—Fine extracted honey for table use, in 60-lb. cans. Price for white, single can, 7½c; two or more, 7c. Amber, one cent less.
C. H. Stordock, Durand, Ills.

Wanted.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us. Evans & Turner,
Columbus, Ohio.

Wanted.—Beeswax; highest market price paid. Write for price list.
Bach, Becker & Co., Chicago, Ill.

Wanted—Comb and extracted honey. State price, kind, and quantity. R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

Wanted.—To pay cash for comb and extracted honey. State kind with best prices
L. H. Robey, Worthington, W. Va.

Wanted.—Extracted honey; state kind, size package, and quantity, lowest cash price.
Edmund J. Berry, Brome, Quebec, Can.

Wanted.—Extracted honey, white clover, basswood, and alfalfa. Send sample at once, stating quantity you have how put up, and lowest price.
The A. I. Root Co., Medina, Ohio.

WANTED.—Beeswax. Will pay spot cash and full marke value for beeswax at any time of the year Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.

THOS. C. STANLEY & SON,
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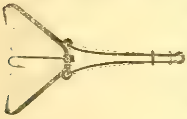

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Inland Poultry Journal,
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QUEENS FOR 1904 Try my strain of three and five banded queens; untested, in April and May, $1.00 each; six for $5.00. Tested, in March and April, $1.25 each; six for $7.00. Orders by return mail. Am booking orders for early delivery. Sold 1800 last year. Can fill all orders, no matter how large.

DANIEL WURTH, Karnes City, Karnes Co., Texas.
Mention GLEANINGS in your order.

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I have secured the photographic outfit and plates of our late friend Mr. J. H. Martin, the "Rambler," and am prepared to furnish unmounted prints of views taken by him, at 25c each, or $2.75 per doz. Enclose 2c stamp for list of views in stock.

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[Established in 1873.]

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Discontinuances: The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

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Column width, 2⅜ inches. Column length, 8 inches.
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Advertising rate 20 cents per agate line, subject to either time discounts or space rate, at choice, BUT NOT BOTH.

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2 pages	70 00	4 pages	120 00

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Circulation Average for 1903, 18,666.

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Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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CONVENTION NOTICES.

The Michigan State Bee-keepers' Association will hold its annual convention Thursday and Friday, Feb. 25 and 26, at the Agricultural College. The Michigan State Dairymen's convention will meet at the same place, Tuesday, Wednesday, and Thursday, and the round-up institute of the farmers' institutes will be held at the same place from Feb 23 to 26. One session of the dairymen's convention will be a joint session with the institute, and one session of the bee-keepers' convention will be a joint session with the institute. There will be half fare on all Michigan railroads. Dinner and supper can be secured at the College; but visitors will have to go to Lansing for breakfast and lodging. There is an electric line that takes passengers from the College to Lansing for five cents.

W. Z. HUTCHINSON.

Our Advertisers and Advertising.

We have just received a 136-page catalog of the Ohio Carriage Mfg Co., 3120 Sixth St., Cincinnati, Ohio. This is one of the most complete catalogs we have examined; and any one expecting to order a buggy or harness will do well to get it. If you mention GLEANINGS IN BEE CULTURE when you request the catalog, they will also send you a booklet entitled "Good Buggies and How They are Made," which contains much valuable information. Ask for both catalog and booklet so that there will be no misunderstanding.

A FARMERS' TELEPHONE COMPANY.

Our readers are requested to give special attention to the advertisement of the Stromberg Carlston Telephone Co., on page 196 of this issue, and we suggest that you send for their book which tells how to organize a farmers' telephone company, and all about telephone matters in general. They also have another book, F 36, "Telephone Facts," which is sent free on request if your mention this paper. We know of a co-operative farmers' telephone company in operation in Michigan for the last two or three years, which has been a great convenience, and the expense has not been more than one fourth the rates charged by the regular telephone lines.

IRON AGE CATALOG.

We received, a few days ago, a copy of the 1904 edition of the "Iron Age" catalog, illustrating and describing the "Iron Age" farm and garden implements as manufactured by Bateman Mfg Co., Box 120, Grenloch, N. J. They set forth in their catalog a most complete line of double and single wheel hoes, seed and fertilizer drills. From the description, and use of both wood and half-tone cuts they are most fully described, and by reason of the up to date design of these implements, together with the numerous attachments applicable to them, there seems little chance for improvement in goods of this character.

They also fully illustrate and describe a complete line of horse hoes and cultivators; among them are some new style tools which have just been patented.

It may be of interest to our readers to know that, in the manufacture of this line of goods, this company is a pioneer, having originally made the old wood-frame cultivator, and was the first to place on the market an iron-frame cultivator.

In the catalog they illustrate and describe the most complete line of riding cultivators manufactured by any one company, and we venture to say from the description given, that they employ the most up-to-date and valuable methods in the construction of them, manufacturing riding cultivators for level surface hill-sides sandy or stony soil, and for the cultivation of not only corn and potatoes, but for almost every variety of plant grown in rows.

These people manufacture the famous Improved Robbins potato-planter, which has been sold in such large quantities and given such universal satisfaction here in Ohio; and to give an idea of its great efficiency and high merit, we quote the words of Dr. W. I. Chamberlain: "It is hand-dropping, spaced with unerring accuracy by machinery."

Besides the tools mentioned above, they also manufacture two horse walking cultivators, sugar-beet tools, special tools for trucking, market gardening, etc.

None of our readers interested in agriculture should be without a copy of this catalog, which is sent free on application.

I. J. Stringham, New York,

keeps in stock several car-loads of Apiarian Supplies of the latest patterns, and would be pleased to mail you his 1904 catalog. Bees in season.

Apiaries, Glen Cove, L. I. Sales Rooms, 105 Park Pl., New York.

QUEENS! ATTENTION! QUEENS!

During 1904 we will raise and offer you our best queens. Untested, $1.00 each; $5.00 for 6; $9.00 for 12. Tested queens, $1.50 each; best breeders, $5.00 each. One, two, and three frame nuclei a specialty. Full colonies, and bees by the car-load. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy-Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18, Beeville, Tex.**

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Untested	$ 75	4 00	7 50	$ 60	3 25	6 00
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Select tested	2 00	10 00	18 00	1 50	8 00	15 00

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $1.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

Try Case Strain.

They make the whitest comb honey; have proved best for extracted, especially in Cuba; are but little inclined to swarm. Queens are carefully bred by experts. Two firms have bought 900 each for their own yards. Our reputation is second to none. We mean to keep it up. We are planning better queens, earlier and more of them, for 1904.

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Geo. J. Vande Vord

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Our Queen Circular is now ready to mail.

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We have some extra copies of the **Weekly American Bee Journal** left over from the latter part of 1903. We will mail 10 of these numbers for 10 cents (in stamps or silver). They are fully equal to a year's subscription to most of the monthly bee-papers that are published—and for only 10 cents. If you are not acquainted with the American Bee Journal, this is a fine chance to familiarize yourself with it.

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This book has had an increased sale lately. It contains 328 pages, bound in cloth. Dr. Miller's crop was **18,000 pounds of Comb Honey last year.** In his book he tells just **HOW** he manages his bees. **YOU** will want to know **his successful way.** In fact, every bee-keeper should own and read Dr. Miller's book. Price, postpaid, $1.00. Or, with the Weekly American Bee Journal one year—both for $1.75.

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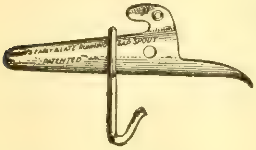
The Most Extensive BEE-KEEPER

in Michigan is Mr. E. D. Townsend, of Remus. He has kept bees many years, is managing several out-apiaries with no help except that of his two boys in their early 'teens, and he is MAKING MONEY. It has required much persistent urging to get him to write for the Review, his excuse being that his FORTE was that of producing honey, instead of writing about it. But it is the experience of exactly such men as this that is real help to others who are producing honey, and I have succeeded in getting three articles from him, and have pretty fair hopes of getting at least as many more. The publication of this series was begun in the January Review, and will be continued, one article each month, as long as Mr. Townsend can be induced to write them. When attending the bee-keepers' institutes in New York this winter, only one of these articles had appeared, yet I received many congratulations upon having secured Mr. Townsend as a correspondent. Remember, these Townsend articles are only one of the many good features of the Review. Subscribers write: ' It grows better all of the time. I shall take it as long as I keep bees."

I have no more back numbers of the Review, nor copies of Advanced Bee Culture, to give to new subscribers but ; if you are making your living keeping bees, you can't spend $1.00 in any way that it will bring you greater returns than in sending it for the Bee Keepers' Review for 1904.

W. Z. HUTCHINSON, Flint, Mich.



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Sound, bright stock; most popular varieties. Send for descriptive price list. :-: :-:

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For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

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carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundtion, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added. This saves buyers $1 50 per 100 pounds in freight, or 36c on each hive.

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HAND, BUCKET, BARREL KNAPSACK and POWER SPRAYERS.

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The Deming Co., Salem, O.

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that Page Wire is twice as strong as common wire of the same size. Try it and prove it.

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FENCE! ***STRONGEST MADE.*** Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.

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OUR NEW WISCONSIN HIVE ❦ UP-TO-DATE IN EVERY RESPECT

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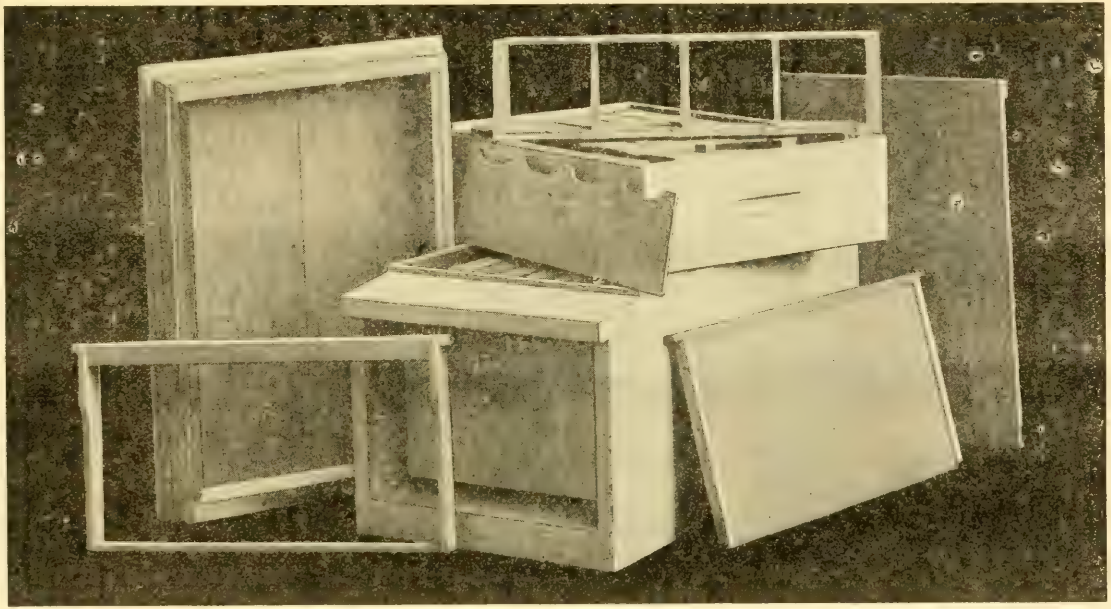

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GLEANINGS IN BEE CULTURE

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Stray Straws

By Dr. C. C. Miller.

“BEGINNERS had better clip the wings on one side only,” p. 134. Good advice for beginners. Equally good for veterans.

YEARS AGO the Germans were trying to find what would hasten granulation in honey, and they decided, just as we have, that agitation is the thing.

NEW JERSEY bee-keepers would do well to send 50 cents each to Geo. N. Wanser, Cranford, N. J., to become members of N. J. B K. Ass'n, and then that association should join the National in a body.

THE USUAL SPACE left by the bees between two surfaces of sealed honey, or between honey and separator, is ¼ inch. Sometimes, however, the bees make a greater space—I wonder why. Before me lies a section showing that the bees left a space of ⅜, making the comb 1⅛ instead of 1⅜ thick, and it *looks* still thinner than that. [While bees have an approximate rule about spacing, yet there are a good many variations, as I have noticed. But is not the average space usually a trifle under ¼ inch? The space between the surfaces of sealed brood will be wider than between surfaces of honey, as a rule.—ED.]

THAT TRIP on the glass-bottom boat—the one A. I. Root tells about, p. 141! I was seasick on the steamer going over; but the minute I struck land I was over it, and enjoyed to the full those wonderful sights at the bottom of the ocean. Then we had that delicious fish dinner Bro. Root tells about. I don't remember what we paid for it, but I remember that I thought it a very moderate price; but before I was through with that dinner, coming back on the steamer I thought I paid dearly for it. I thought I had been sick going over; but coming back—oh my! We passed a whale in full view, and there was a big rush to see it. Never a rush did I make. What cared I for whales? My mind was otherwise occupied.

J. E. JOHNSON talks in *Am. Bee-keeper* about applying formalin gas in a hive full of bees, and killing foul brood without killing the bees. Sounds crazy-like; but knowing the man I ve some faith in what he says. He makes the point that *Bacillus alvei* being vegetable, and the bee animal, what is fatal to one is not necessarily fatal to the other. [This is a matter on which it would be interesting to have some bacteriologist enlighten us; but is it not true that, when the gas is used very strong, it kills the bees? and has it not been stated that it must be used strong in order to kill the spores as well as the active bacilli?—ED.]

YOU “HAVE SECURED uniformly good results with a ⅞-inch space” under bottom-bars, Mr. Editor, p. 135. Just so; but some of us with conditions not perfect will be safer with 2 inches. Even with two inches the cluster will sometimes be down on the bottom-board, and then it's hard to clean away the dead bees. A ⅞ entrance might be clogged where 2 inches would be clear. “Pretty bad wintering to clog a ⅞ entrance?” Sure; but then there is some bad wintering. [If the entrances are kept reasonably clear, is it not true that ⅞ depth would be enough? Is it not a fact that any bee-keeper who winters indoors should look to his bees occasionally?—ED.]

M. D. ANDES makes number-tags by means of an indestructible set of dies costing 50 cents. Pieces of sections thus punched will last well, if they could only be made to be seen at several rods' distance. Could rubber stamps or other type be made to print on wood with weather-proof ink? How would printing-ink do, covered with varnish or oil? [Rubber stamps can be made, and regular printing-ink, or, better still, indelible pad ink, could be used very satisfactorily. The complete set with figures 1½ inches high with an indelible pad would cost 75 cts.; but a cheaper thing, and perhaps as good, is a set of brass stencils.

These we have been furnishing all the way from 0 to 9, figures 1½ inches high, for hive-numbering purposes, for 35 cts.—ED.]

BRO. A. I. ROOT, please allow a word in defense of W. D. Null, p. 134. As I understand him, he was only sowing sweet clover on his own land, as he says, "I have tried to get *our* fence-rows and waste patches seeded." [Well, now, doctor, I may be dull, but I don't just see your point. If sheep, goats, and horses search out sweet clover, and keep it down, how is anybody damaged by having it started in the roads and fence-corners, even if said roads and fence-corners adjoin some other man's land? I never heard a farmer complain because red clover was growing in his fence-corners or waste places; and is not sweet clover worth as much or nearly as much as red clover?—A. I. R.]

THOSE FLYING FISH in the Pacific Ocean didn't look to me as they did to A. I. Root, who thinks they "never flap their glossy wings while in the air." To me the biggest part of them was "flap." Page 141. [Doctor, it has occurred to me that I did not say enough about the "flap" part. These fishes had comparatively large wings, and the wings were as transparent as the film of a soap-bubble, almost. Of course, they were concave more or less; and when the rays of the sun struck this concave part, these wings flashed like diamonds. To me it was a remarkable treat; and I wondered to see the passengers all around me so indifferent to the charms of this wonderful spectacle.—A. I. R.]

A MAN who was growing tomatoes in a greenhouse with indifferent success, says M. F. Reeve, in *Am. Bee-keeper*, put in a hive of bees, and was enthusiastic over the results. "He said the tomatoes were in greater profusion, and ripened much better, and at a time when they brought more money." [I believe that at the present time all successful greenhouse-men have bees in the house where they undertake to grow tomatoes, cucumbers, or any thing else that requires fertilization. Taking the pollen from the blossoms with a camel's-hair pencil, and transferring it to the other ones, answers in a measure; shaking the plants so that the pollen will rattle off in the form of dust has also been practiced; but I think all have decided that the bees work cheaper, and do a far better job, than any clumsy manipulating such as I have mentioned. —A. I. R.]

JOHN HEWITT, the British queen-breeder, says he gets more queens started when larvæ are given without than with royal jelly. He takes strips of drone comb after the Alley plan, uses drone larvæ two days old, and when queen-cells are about half built over these he replaces the drone larvæ with worker larvæ just out of the egg.—*American Bee-keeper*. [Some queen-breeders do not use royal jelly, claiming that it is not essential. Others say that the old jelly is removed and new made to take its place. Whether it is or not, it has been our experience that the cells are more readily accepted, as a rule, when supplied with this royal food than when not so supplied. It gives the bees a suggestion that something has been done toward making a cell by supplying a food fit to rear a princess. There, I do not know but some one will now object by stating that royal jelly is not essentially different from the food supplied to worker bees.—ED.]

ORGANIZATIONS in Germany probably have a larger membership than our National, says ye editor, page 115, "but somehow we do not hear about their kicking up very much dust." No, we're so busy with our own affairs that we don't know what's going on abroad. The fact is, there's a good deal bigger dust kicked up there than here; they have bigger memberships, bigger conventions, and take up a good deal bigger space in the bee-journals than does our National. Oh, yes! we've got to do some lively kicking before our dust equals theirs. [What I meant by "dust-kicking" was the defense of bee-keepers' rights; the establishment of valuable precedents in law; fighting adulteration; securing legislation favorable to bee-keepers. The getting-up of a great big convention, and passing of resolutions, probably does not influence much the great outside world around us, that does not care a penny about our interests. Is it not true, doctor, that the National stands pre-eminent above all other organizations because it *does* things? We can write and we can talk; but unless we *do* things, in my estimation we are not "kicking up very much dust." Is there any organization in all Europe (and I am asking for information) that is as powerful a factor in law and in general legislation as the National on this side of the hemisphere?—ED.]

YOU ARGUE in that first footnote, p. 116, Mr. Editor, that your queen-rearing methods are all right, just as if I had been questioning them. Bless your heart! I never thought of such a thing. Very likely you're right when you say "we believe one will not go very far astray if he follows us implicitly." But how under the sun is one to follow you in making nuclei without imprisoning them if you don't tell how? Merely saying, "Where one knows how" is only exasperating. Turning to the question itself, your answer satisfies in part. I think a beginner would understand that he is to select frames of brood soon to hatch; but I think he would be badly puzzled to know *how* to give "a larger proportion of *young* bees to the nucleus." [Why, the easiest thing in the world, doctor. It has been our experience that a light shaking of a comb will disengage the old bees and a few young downy ones, and leave nearly all the active young bees. When we form nuclei, or at least that was my rule, we give each frame of bees before moving to another location a light shake. The young vigorous Italians — those that have hardly begun to do field work, and which have, perhaps, never taken wing, will stick to the combs, while a majority of the older ones will fall off. The few that do cling will, of course, go back; but their return will not perceptibly weaken the nucleus. I feel sure you must know of this trick unless you have been working with hybrids so long that you had forgotten it; but it works like a charm with pure Italians. Hybrids and blacks all shake easily, young as well as old.—Ed.]

Glycerine, a small per cent, put in honey to keep it liquid, p. 120. I'm afraid of that—very much afraid of it. We raised a howl against putting in glucose to keep from granulating, and this is just a little like it. The higher price of glycerine makes a difference, but—but— [Your last unfinished sentence answers your own question. Adulteration, properly speaking, is the putting of a cheaper ingredient into a more expensive article for the purpose of deceiving, and lessening the cost of the product. If two per cent of glycerine would prevent granulation, let us say 2 lbs. in 100, would any one call it adulteration, when glycerine at wholesale costs 20 c. per lb. as against 6 or 7 for extracted honey? It was once said that 10 to 20 per cent of glucose would prevent granulation. The larger the quantity, the more sure the prevention. But glucose costs less than one-fourth as much as honey; and it is very evident that the people who first advocated glucose to prevent granulation did so simply to cover up a deeper-laid scheme of cheapening the product, with the intention of selling it as pure honey, and *not* to prevent granulation.

But we do not know yet that glycerine will have any effect; and if it does I should not think of using more than two or three per cent. Indeed, I question whether any one could afford to use any more. Let's see: 100 lbs. of extracted, we will say, would cost $6.00. Suppose we should put in 3 lbs. of glycerine, worth 60 cents. This would be enough to wipe out a good profit. The margin on honey is close; and if one could make 10 per cent on his honey, or 60 cents, he is making a fair profit—that is, when he is buying to sell again. But you might argue that a man who bottles his honey, and gets 20 cents per lb. for it at retail, could afford to use the glycerine to the extent of two or three per cent or more. But does the one who receives 20 cents retail actually make much more than the one who wholesales in barrels and square cans at 7 to 8 cents? We must deduct the cost of the glass package, the cost of bottling, labeling, washing of the bottles, corks, etc. Now that I have asked this question, whether one can make more money bottling than he can to sell at a good price wholesale, I am wondering whether our subscribers can not help us in the solution of it. I once talked with a large bottler, and he told me that if he could get a good fair wholesale price for his honey in bulk he could actually make more clear cash than he could to bottle. Then why did he put it up in glass? Simply because, a good deal of the time, he can not get his price for bulk honey, and he is obliged to bottle in order to make the necessary profit in his business.—Ed.]

Pickings from Our Neighbors' Fields
BY
"Stenog."

Speaking about "kicking up a dust," the Austrian Imperial Union, or what might be translated as such, which includes nearly all Austrian bee-keepers, is making itself felt. Its first action was to interview the Commissioner of Railways to see if he would not have the railway-beds of that kingdom planted with honey-bearing flowers. The attempt was perfectly successful. That, certainly, is a step in the right direction, not only in the securing honey, but in getting unsightly weeds out of the way.

The Central Union, in Prague, has secured for its members very cheap insurance on bees. For the trifling sum of 8 cents every member of the Union is insured, per colony of bees and hive, against loss by fire, storm, and thieves. So much for foreign dust.

BRITISH BEE JOURNAL.

A correspondent writing from Natal, South Africa, says:

> I had some very pretty sections of comb honey last year, some filled with pure orange-blossom honey as white as snow. Then I had some thinner sections, darker honey, from the mango trees. Many people I showed the sections to here said it was the first honey they had seen "made to order" and one lady insisted it had been made by machinery!

* * *

A writer makes the following sensible suggestion. Perhaps the National may have to consider the matter some day:

> I should be glad to know whether it is legal to describe as "honey" any production otherwise than the nectar gathered by bees from the flowers. For example, would it be legal to describe glucose as "glucose honey," or treacle as "treacle honey"? If it be not legal, I think it is the duty of bee keepers to take such action as will at once cause the withdrawal of a certain advertisement, headed, "Honey without Bees," and as a sub-head, "A New Food Delicacy."

* * *

In the issue for Jan. 21 the editor says:

> It is with sincere regret and sorrow that we have to announce that the *Revue Internationale* closes its useful career after an existence of twenty-five years. We have the last number before us in which M. Ed Bertrand, the venerated originator and editor of the paper, takes leave of his readers. Many papers are started, and after a short existence disappear without being missed; but with respect to the *Revue Internationale*, we venture to think the regret will be universal, and the void created will be long felt. All bee-keepers acquainted with the French language read with interest what appeared in this, the leading expositor of the movable-comb system on the Continent of Europe, and looked forward to its appearance

monthly, and they will keenly feel the loss of it. M. Ed Bertrand at the age of seventy-two has well earned his retirement, and has the satisfaction of seeing the methods he has so ardently advocated pretty generally adopted, not only in his own native country, but also in France and other countries.

Further on is the following:

> M. Bertrand, it was known, was not only a practical but a successful bee keeper and his advice could always be relied upon. Having also successfully fought foul brood he was able to give such advice as has been the means of curing many diseased apiaries.
>
> Being acquainted with several languages M. Bertrand has kept his readers informed of the progress being made in England, America, Germany, and Italy. It was with this object in view that the "British Beekeeper's Guide Book" and "The Honey Bee" were translated by him into French, as was also that most complete work on "Foul Brood of Bees" by F. C. Harrison.

The above is well-deserved praise for one of the most prominent bee-men of the world. Personally, too, as much may be said for him. Perhaps we shall yet hear from him through other journals.

COLMENERO ESPAÑOL.

Judging from what I have read in the new Spanish bee journal, *El Apicultor*, Mr. Mercader-Belloch, the late editor of the journal I am reviewing, was what the "weather-prophets" term a "reactionary storm center." The editor says of him, apparently with a feeling of charity too:

> We do not wish to speak of his defects. Who does not have them? We will simply say that his own personal interests counted with him as nothing when they stood in the way of his gaining his great object – that of occupying the first place among Spanish bee-keepers, and to hold absolute authority over any of their criticisms. For that he sacrificed friendships, forgot the services of others, and stirred up antipathies against those who presumed to deviate from him so much as a line or to contradict any of his affirmations, and wound up by finding himself alone in the management of *El Colmenero*, which at last was a faithful reflection of the decay of mind of its melancholy editor.

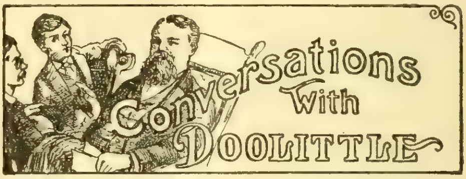
The writer of the above, long the right-hand man of Mr. Mercader Belloch, then relates the difficulties they had in finding a suitable place to establish an apiary. The best they could do was to take up with a piece of rocky and unproductive land, and use it as the center of a series of apiaries around among those steep mountains.

Nothing could be more discouraging to a man of his disposition than to meet with repulse in his own land; and that will account largely for the following from his pen, concerning bee-keeping in Spain. It is the last of a review which he wrote about bee-keeping in different countries, which I have already given. He says:

> Our country continues behind in general in all branches of industry, and apiculture is no exception—quite the contrary. Aside from a few persons who have devoted themselves to the improvement of agriculture and other industries, the nation in general looks with contempt, not only on bees, but on agriculture at large In this unfortunate country which has been styled "the land of opposites," the people learn with zeal to make all kinds of goods, while Spain lacks the conditions necessary to compete with other nations. . . . Some hope, or pretend to, to make Spain an industrial nation like England and the United States, which would simply work her ruin, as it would concentrate many in the large cities and depopulate the rural districts. This would create conflicts which, in time, would cripple all departments of government, and work the ruin of the very class it is designed to protect. . . . Here in Spain it is very difficult to put in practice modern systems, as the people are opposed to every new thing. Let us enumerate some of the almost insuperable difficulties that present themselves to a progressive man: 1. The characteristic indolence of the people; 2. A kind of fear which workmen have for the gatherer of statistics for it is usual for them to refuse absolutely to give any data on which to base apicultural statistics; and without that, nothing can be done 3. The refusal of those same bee-keepers to communicate a report of their failure and success to this journal, for we should like to publish all.

The above is not exactly bees, but it is worth considering by the bee-men of this country and Canada. In the last 50 years the price of labor in Spain has fallen from 53 to 47 cents per day, while the cost of living has greatly advanced. With superior natural advantages, Spain has stepped down from her position as first among nations at the time Columbus was imprisoned by her for giving her a hemisphere, till now she is the seventh power in the world, which is equivalent to saying she is nowhere. Discontent broods over her borders, and revolution over her interior.

Mr. Mercader-Belloch was a good man, a very able one, and one who was highly gifted with true greatness of mind.



MAKING SUGAR SYRUP FOR FEEDING BEES.

"Mr. Doolittle?"

"That's my name."

"My name is Barber, and I came over to have a talk with you about making feed for bees out of sugar. I know you have told how you do this in some of the bee-papers, but I can not turn to where it is."

"I suppose it is spring feeding you want to do."

"Yes. But I want to know how to make sugar syrup for feeding at any time of the year. But perhaps we better talk about how to make the syrup for spring feeding. How about this part?"

"It is not so very essential regarding how it is made for spring feeding as for fall, as the bees can fly often in the spring, while in fall they should be fed in view of their winter repose and quietude, as much as possible. But for early spring feeding I should make the syrup "richer" than later on. Will you have to feed the bees during March, do you think?"

"Very many of my colonies went into winter light in stores, and I fear they may starve soon; and that is the reason I come to you for advice on this matter of making feed for them."

"For feeding bees early in the spring, before they can fly every few days, I should make the syrup after a formula I have used with success in years gone by, which is as follows: Fifteen pounds of water is weighed up and put into a tin vessel of suitable size, when this vessel is put over the fire till the water boils, at which time twenty pounds of granulated sugar is put in, the same being done by slowly pouring it into the water while the whole is being stirred, so that the sugar shall not all go in a heap on the bottom of the vessel, and a part of it scorch or burn there, as is often the case where a great lot of sugar is poured into any kind of vessel set over a hot fire, as in such case the water will not keep the sugar from settling on the tin, and scorching or burning."

"I am glad you spoke of this. I burned some syrup in making one time, and I did not then know the reason for it; but I now remember I poured the sugar right in without stirring and left it till it boiled. But go on."

"After stirring the sugar in till it has mostly dissolved, the whole is left till it boils again, when it is set from the fire, and three pounds of honey is stirred in, to keep the syrup from granulating or crystallizing, and to give a better relish for the bees."

"Is this honey a necessity where a person has none to put in?"

"No, it is not absolutely necessary at this time of the year; but I have been of the opinion that I got better results where I so used it, and have often put in three or four combs from partly finished sections where I did not have other honey to put in. The wax that will come from the comb can be taken off when the whole cools, so this will do no harm by way of interfering with the manipulation of the syrup. This will give you 37 to 38 pounds of the best feed I know of for very early feeding, and you can cut the formula in half, double it, treble it, etc., in accord with your needs and at your pleasure."

"How do you feed it?"

"I use a division-board feeder at this time of the year, and, in fact, at all times of the year. Just take out a comb where it will come right up to the cluster of bees, then put in your feeder in place of the comb; pour in your feed, having the same a little more than blood-warm, when the bees will take it all up before it gets cold, unless the weather is very severe."

"How often would you feed?"

"I would give a feederful at a feeding; and by doing this, one feeding will last the colony for a week to ten days, thus giving you a chance to choose a mild day for the feeding process."

"Do you make all the feed, and feed in this way with all spring feeding?"

"No. As spring advances I use a light brown, or what is called No. 1 C sugar. With this I put in fifteen pounds of sugar to the fifteen pounds of water, bring to a boil, and leave out the honey. Feeding after the bees can fly nearly every day is done mainly for stimulating brood-rearing; and I find that C sugar has a better effect in accomplishing this object than granulated sugar; but the bees must have a chance to fly often when feeding this grade of sugar, or they are likely to suffer from diarrhea."

"How often do you feed with this syrup made from C sugar?"

"Generally every night, doing the feeding in the twilight to prevent any chance of the bees robbing out or trying to rob the colonies being fed."

"How long is the feeding kept up?"

"Till the flowers begin to yield honey or nectar. When this comes about, it is not necessary to feed to keep the bees from starving or for brood-rearing, as nectar from a natural source is always better in every way than that which comes from a feeder."

"Well, how about fall feeding, as I see that it is nearly time for me to be going?"

"Feed for fall feeding is made in this way: Fifteen pounds of water is used, as I told you at first; and when this boils, 30 pounds of granulated sugar is stirred in (as I told you to do), instead of the 20 pounds there used; and when this is about to boil, all scum which may arise is carefully skimmed off, so that the syrup may be as free as possible from all impurities. After boiling, it is set from the fire, and five pounds of good thick extracted honey is stirred in."

"Do you consider the honey necessary when feeding in the fall for winter stores?"

"I certainly do. When syrup is made thus, so it is of the consistency of honey before feeding, as it always should be when feeding after the harvest is past, for winter stores, it will crystallize (with me) in the feeders, where no precaution is used; and in my many experiments which I made to find out the best feed for winter I even had it harden in the cells after being stored there by the bees, where nothing was used to prevent this crystallizing, as some have recommended. This five pounds of honey is sure proof against all these troubles; and as it is of itself good feed for bees I do not see why any one should object to its use, even if the same had to be bought. But this buying is not generally necessary, even in a very poor season, if the bee-keeper keeps an eye on his knitting, as all successful bee-keepers will."

"How about the feeding of this syrup?"

"It is fed from a division-board feeder, the same as before; but as much feed is given each evening as the bees will carry down during the next 24 hours, till the needed amount required for winter is given. About 25 pounds will generally be used during the three first days after commencing, and that is generally considered sufficient for the safe wintering of any colony. If colonies have ¼, ½, or ¾ of this amount of honey in their combs, the feeding of a sufficient amount to supply the lack is all that is required."

"Well, I thank you for this interview. I must be going now."

Editorial
By E.R. Root.

READ the proposed foul-brood bill below.

THIS is probably the severest winter that bee-keepers have experienced for over 20 years. It has been continuously cold since the first of December, with only two days when the bees could fly.

I CAN only wish that all of our bees that are on their summer stands were indoors in one of our bee-cellars. I am fearful we shall have heavy losses among the outdoor bees before warm weather sets in in the spring.

THE bee-keepers of Ohio are requested to write to their Senators and Representatives at once, and ask them to support the bill for the suppression of foul brood. This bill is now pending before the House. If you don't know who the members are, ask some county official or your postmaster. It is very necessary that you write at once.

A FOUL-BROOD BILL BEFORE THE OHIO LEGISLATURE.

As I have before reported in these columns, the bee-keepers of Hamilton Co., O., have been very active for some time in the matter of securing foul-brood legislation for Ohio. In the southern part of the State the dread disease has been making considerable progress, especially with the box-hive bee-keeping class; and the up-to date bee-keepers have been simply forced to take this course in self defense.

It seems the disease was imported from Kentucky; and in spite of all the bee-keepers on the border-line in this State could do, it has been making headway against them because there was no law by which they could compel the box-hive men and others to treat their colonies. In other portions of the State — notably in the northern part — the disease has made some inroads from Michigan. Taking it all in all, it seems as if now were the time when we should have suitable legislation — when the traditional "stitch in time" would "save nine."

It has cost other States large sums of money, particularly Canada, New York, Wisconsin, Michigan, and Colorado, while the direct cost to the bee-keeping industry has been enormous. In some sections of New York, bee-keeping has been well nigh wiped out, where, under ordinary conditions, bees have made good money for their owners, and could do it again.

It is very necessary that the bee-keepers in every State where no laws are in force get some bill before their legislature this winter, and, if possible, get it passed so that the necessary stitch in time may be taken.

That is precisely what the Ohio bee-keepers are trying to do, and none too soon either. A bill has been presented by the bee-keepers of Hamilton Co. that has been modeled after the excellent law that is in force in Colorado. As will be seen by the text herewith given, it is a *county* law. Whenever foul brood or any other contagious disease is found to exist in any particular county, on the complaint of three citizens the county commissioners shall appoint an inspector who shall make the necessary investigation; and if he finds the disease to exist he shall, under the provisions of the law, order the necessary treatment to be carried into effect. There are suitable penalties for failure to comply with his orders. Among the provisions, it will be noted, is one requiring box-hive men who are supposed to have foul brood to transfer on to movable frames.

Now, while, generally speaking, a State law with one inspector has proven to be more satisfactory, and while it is true, also, that certain measures of this kind have been repealed in favor of a general State law, yet a careful canvass of the situation on the part of the Ohio bee-keepers seems to show that the Colorado law is the only measure we could get at present in this State, as our General Assembly is somewhat shy about passing any bill that requires an appropriation, especially if it thinks the passage of the bill will create a "job" for some one. So many bills creating jobs have been imposed on them that it would be simply impossible to get a State law now. If the present measure shall prove to be inefficient it will serve as an excellent stepping-stone for something better. Michigan first had a county law for a few years, repealed it, and substituted a State law; but I understand that the bee keepers of Colorado are very well pleased with the practical working of their county law, after which the Ohio measure is modeled, and it may never be necessary to ask for any thing better.

The Ohio bill has been thrown into the hopper, and is being considered by the Committee on Agriculture. A large representation of Hamilton Co. bee-keepers, as well as a representative of this journal, appeared before the committee, and stated the urgent need of the measure. General Manager France has furnished some data for the consideration of the committee. We have every reason to believe that the committee will report the measure favorably without amendment, and that the same will be passed without opposition. But bee-keepers all over the State are urged to write to their Senators and Representatives, and ask them for their support, and explain *why* the law is needed. If we get the idea that the bill will pass of itself, we shall be woefully mistaken. Every subscriber to this journal in Ohio should make a point to write at once to his Representative and Senator; and that means you, and you, and *you* who read this. Do it at once before you forget it.

The following is the text of the bill that is now before the Committee on Agriculture for consideration. Hon. D. R. Herrick, of Hamilton Co., who introduced the measure, was once a bee-keeper himself. Quite a number of the Representatives in the House have been interviewed. I have seen several myself. Now it rests with the Ohio bee-keepers to do their duty, and do it soon.

A BILL

To provide for County Inspectors of Apiaries, and defining their duties and providing for their compensation, for the purpose of curing and avoiding foul brood or other diseases among bees and their hives.

Be it enacted by the General Assembly of the State of Ohio:

SECTION 1.—That whenever a petition is presented to the Board of County Commissioners of any county in the State of Ohio signed by three or more persons, all of whom are residents of the said county, and possessors of an apiary, or place where bees are kept, stating that certain apiaries within said county are infected with the disease known as foul brood, or any other disease which is injurious to bees or their larvæ, praying that an inspector be appointed by said Board of County Commissioners, said Board of County Commissioners shall, within five days after the presentation of said petition, appoint a person as bee-inspector who is a resident of said county, who shall be a skilled bee-keeper, having thorough knowledge of foul brood and other diseases injurious to bees and their larvæ and the treatment of the same.

SECTION 2.—The person so appointed shall, within five days after his appointment, file with the said Board his written acceptance of the office, or, in default thereof, or in case of vacancy, the Board shall, in the same manner, make new appointments until the said office is filled. The inspector shall hold his office for two years, and until his successor is appointed and qualified, except when upon petition of ten persons (each of whom is a resident of said county, and possessor of an apiary), to the Board of County Commissioners of said county, may remove said inspector for cause, after a hearing of petitioners.

SECTION 3.—Any bee-keeper, or other person who shall have cause to believe that any apiary in his county is affected with foul brood or other disease, either in his own apiary or elsewhere, shall make affidavit, stating that, on information or belief, he believes that certain apiaries, describing the location naming the owner or keeper, are affected with foul brood or other disease, and his ground for such belief. On receiving said affidavit from any source of the existence, in any apiary in his county, of the disease known as foul brood, or any other infectious or contagious disease of bees, the county inspector of bees shall forthwith inspect each colony of bees and all hives, implements, and apparatus, honey and supplies on hand, or used in connection with such apiary, and distinctly designate each colony or apiary which is infected, and notify the owner or person in charge of said bees thereof, in writing or otherwise; and the owners of said bees, or the persons in charge thereof, practically and in good faith to apply, and thereafter fully and effectually carry out, to and upon such diseased colonies, such treatment as may have been prescribed by the said inspector for such cases; also thoroughly disinfect, to the satisfaction of the inspector, all hives, bee-houses, combs honey, and apparatus that have been used in connection with any such diseased colonies; or, at his election, the said owner or person in charge of such bees may within the same time, utterly and completely destroy said bees, hives, houses, comb-houses, honey and apparatus by first killing the bees (by the use of sulphur fumes when the bees are in the hives for the night) by fire, or bury the same in the ground with a covering of not less than two feet of earth.

SECTION 4.—The County Inspector of bees shall have the right to enter the premises of any bee-keeper where the bees are kept, and inspect such bees; and any person resisting or refusing to allow said inspection by said bee-inspector shall be guilty of a misdemeanor, and may be then and there arrested by said bee-inspector or person deputized by him, and brought before a Justice of Peace, and upon conviction shall be fined not less than ten dollars nor more than twenty-five dollars.

SECTION 5.—After inspecting, working with, or handling infected hives or fixtures, or handling diseased bees, the inspector or other person shall, before leaving the premises, or proceeding to any other apiary, thoroughly disinfect his own person and clothing, and shall see that any assistant or assistants with him have also thoroughly disinfected their clothing and persons.

SECTION 6.—The inspector shall have full power in his discretion to order any owner or possessor of bees, dwelling in box hives, in apiaries where the disease exists (being mere boxes without frames), to transfer such bees to movable-frame hives within a specified time; and in default of such transfer the same shall become unlawful and the inspector may destroy, or order for destruction, such box hives, and the bees dwelling therein, as a public nuisance.

SECTION 7.—Should any owner of or keeper of, or other person having diseased bees, or their larvæ, or of any affected hives or combs, appliances, or utensils for bee-keeping, sell or barter, or give away the same, or allow the same or any part thereof to be moved, such person shall be guilty of a misdemeanor, and upon conviction such person shall be fined not less than ten dollars nor more than twenty-five dollars.

SECTION 8.—Should any person whose bees have qeen destroyed or treated for foul brood sell, or offer for sale, any bees, hives, or appurtenances of any kind, after such destruction or treatment, and before being authorized by the inspector to do so or should he expose in his bee-yard or elsewhere any infected comb honey or other infected thing, or conceal the fact that such disease exists among his bees, such person shall be guilty of a misdemeanor, and upon conviction such person shall be fined not less than ten dollars nor more than twenty-five dollars.

SECTION 9.—If any owner or keeper of bees knows of, or after being notified by the county bee inspector that foul brood or other infectious or contagious disease exists in any of the hives in the apiaries owned by or in charge of said persons, and shall fail to comply within ten days from receiving said knowledge, and the date of receiving instructions from the county inspector to cure or destroy the bees or hives, or their appliances, such person shall be guilty of a misdemeanor, and upon conviction thereof such person shall be fined not less than ten dollars nor more than twenty five dollars.

SECTION 10.—When the owner or possessor of bees shall disobey the directions of said bee inspector in curing or destroying any diseased bees, honey, hives, or appliances they shall become unlawful and a public nuisance, and the said bee-inspector shall at once destroy said bees, honey, hives, or appliances, and may deputize such additional persons as he may find necessary to effect said destruction.

SECTION 11.—The county inspector shall make a monthly report in writing, under oath, to the Board of County Commissioners, in which report he shall state the days and number of hours in the preceding month spent by him in the actual discharge of his duties and shall in said report state the name of the owner or keeper, and the location of the apiary upon which such time was spent in curing or destroying said bees, together with an itemized account showing the dates and amounts, for what incurred, money spent for any discharge of his duties, and to whom the same was paid, and for what services and considerations such indebtednees was incurred, and accompany said report with the affidavits given him under and in pursuance of Section 3 of this act, and make full and complete report of all he did, and results of his treatment of any apiary.

SECTION 12.—After the county inspector of bees in any county shall make report, as provided in the preceding section, said county commissioner shall allow and pay to said county inspector of bees two dollars for a full day and one dollar for each half-day necessarily and actually employed in the discharge of his duties under this act, together with his necessary and actual expenses while so employed, to be audited, allowed, and paid by the county officers.

SECTION 13.—This act shall take effect and be in force from and after its passage.

NO HALF-TONES THIS ISSUE.

IT will be noticed that in this issue all half-tones are omitted. We have quite a number of them on hand; but owing to the fact that a special kind of paper that we have been expecting, for the printing of such plates, has not arrived, we are putting in a larger number of pen-drawings and a larger amount of other matter which we have no doubt will prove to be fully as interesting. In our next issue we hope to begin again the regular series of half-tones.

POSSIBLE SEVERE WINTER LOSSES.

The reports in regard to losses from outdoor-wintered bees are decidedly unfavorable. In some localities it is stated that the bees have all died off. In others, there are strong indications of dysentery. This may be one of the very severe winters. It is impossible at this date to state just what the actual results will be. The failure of the honey crop in California and in Cuba, and possible heavy losses in the northern part of the United States, will put a serious damper on the honey business for 1904.

SLATE V. IRON ROOFINGS FOR HIVE-COVERS, AGAIN.

We have just been talking with a sheet-metal man regarding the matter of roofings. He admits that the new tin roofings are very short-lived; that any of the roofings using sheet *steel* covered with either zinc or lead are very much inferior to the roofings made of old-process *iron* coated with the same metals. Genuine galvanized iron —that is, iron covered with zinc—costs over one and a half times as much as sheet steel covered with the same metal. The same is nearly true of the lead-coated plates. But our sheet-metal man urged that sheet steel covered with lead was as good as or better than the same metal covered with zinc; that ordinary terne (lead-covered) steel plates are very good.

Contractors and builders are beginning to demand the iron plates, even at the fearful advance in price; for it begins to appear that the sheet steels are dear at *any* price. Some of them will rust out in one year's time. Old iron roofings that have been down for twenty years are often as good as new steel roofings that have been down for only two or three years.

It is apparent that we can buy iron roofings if we pay enough money. But how is any one going to be sure he is getting what he pays for? I claim to be a fair judge of metals; but I confess I can not see or feel any difference between an iron and a steel plate when covered with tin or zinc.

COST OF ISSUING THE LAST REPORT OF THE NATIONAL.

In the detailed expense account of the last report of the National Bee-keepers' Association there was one item that was conspicuous by its absence; namely, the expense of printing the report itself. That was, no doubt, due to the fact that the bill for the printing had not been received by General Manager France at the time he prepared his copy. I have since obtained from him a statement of the entire cost of printing the report, and the amount he received from advertising in the same. Mr. Hutchinson's bill for the printing was $141. There were 11 pages of advertising at $6.00 per page, or $66.00 in all, making a net cost of $75.00 for the entire report, or 3 cents per copy.

As a general thing, advertising in pamphlets, reports, and books, is not as profitable as the same amount of space in periodicals. It is a difficult matter to secure from manufacturers and dealers very much advertising in pamphlets; but Mr. France succeeded in getting nearly half the cost of the report in advertising; and by so doing he deserves the thanks of the members.

HOME-MADE VERSUS FACTORY HIVES; WHY THE FACTORY HIVE IS AS CHEAP AS THE HOME-MADE ONE; A REPLY TO EDITOR HUTCHINSON.

It will be remembered that the editor of the *Bee-keepers' Review* and I have been holding a friendly controversy on this subject, he taking the ground that the recent advance in the price of hives is a sufficient warrant for bee-keepers to make their own, or get them made at the local planing-mill. I took the ground that the average clear white-pine lumber, without knots, such as factory hives are made of, costs from $50 to $60 per 1000 feet in the open market; that the eight-frame story-and-a-half L. hive with Hoffman frames had about 20 feet of lumber, including frames and necessary waste. This would make the bare cost of the lumber, without any work on it, come to anywhere from $1.00 to $1.20 per hive. Factory hives in hundred lots list at $1.25. I admitted, among other things, that some bee-keepers in some localities could make their own hives cheaper than they could buy them; but I did not think that the average person, in an average locality, could save money by making his own.

In the last *Bee-keepers' Review* the editor in his rejoinder states that he can buy, in his market, lumber with knots in it for $28 per 1000 feet; that he estimates only 10 feet in a hive, not including frames or waste. But he was figuring on a *one*-story hive narrower than the standard, while I was figuring on a *story-and-a-half hive* including Hoffman frames, wider, and including division-board. And he believes, further, that the knotty lumber is good enough; that "the man who buys his own lumber, and has it cut up at the planing-mill, lets these knots go right in; . . . most of these knots are sound; . . while a loose knot does no harm in the side or bottom of a hive. One or two wire nails driven through the surrounding wood into the knot will hold it in place. Even a knot-hole may be covered, if on each side of the board, by tacking on a piece of tin."

I can readily see that some people who make their hives might tolerate this sort of lumber with knots nailed into place, and strips of tin nailed over holes where the knots have dropped out; but a *manufacturer* who would let such stuff go out to his customers would be run out of business. Years ago we furnished hives with sound knots in them; but the trade became so exacting that it demanded clear stock—a demand that the large factories at least have met.

Bro. Hutchinson goes on to show that hives made of knotty lumber, not including frames nor allowing for waste (for no waste could be allowed for, as every thing goes), can be delivered at his door by the planing-mill, for 37½ cents per hive; but the fact that he refers to buying lumber 13 inches wide, for covers and bottoms, shows that he is figuring on a smaller hive than the regular eight-frame Langstroth put out by the factories, and one story at that. Bee-keepers as a rule will not have a cover *just* wide enough. It must project at least a little on each side. But the Dovetailed hive takes a little more lumber than one with lap joints depending on nails to give the necessary strength, because the lock corner fingers pass by each other, and this makes a difference of 3½ inches, 10 inches wide. Mr. Hutchinson also says he can get plenty of 13 inch lumber at $30 per 1000. True, he can get sufficient for *his* needs; but the different factories would not be able to get enough of it—that is, of clear stock, 14 inches wide, not 13 inches. As a natural consequence it is cheaper to use the three-piece cover, which uses slightly more lumber, owing to the overlaping, and here again is an increase in the amount of lumber called for.

Bro. Hutchinson has inadvertently left a rather misleading comparison against the manufacturer. One is almost led to believe, until he looks into the matter carefully, that he can make his own hives for 51 cents apiece, as against factory hives at $1.25 in lots of a hundred. Now, if we stop and analyze these figures we shall see what they cover. The 37½-cent hive of Mr. Hutchinson's is made of knotty lumber, some of the knots loose, and the knot-holes covered with pieces of tin; the boards are probably roughly sawn, and possibly not all accurately cut. The hive itself is only about 13 inches wide, outside measure; it has no tin rabbets—at least none are mentioned, and it has no division-board. The all-wood thin-top-bar loose hanging frame is considered good enough, and these are purchased of a local dealer for 1¾ cents apiece, or 14 cents for eight frames, making the whole hive, one story, cost 51½ cents. The manufacturer, according to the latest list, in lots of 100, will furnish the standard Dovetailed hive, one inch wider, with division board, tin rabbets, *sound clear lumber, accurately made*, with all-wood frames, for 87 cents. Now, this same manufacturer can furnish this same hive, if made of knotty lumber, of the kind that Mr. Hutchinson describes, for 60 cents, and make the same profit that he now makes on other hives. Now, in saying this, do not get the impression that the Root Co. would at the present time accept orders for hives at this price, of the kind described, *until after* we get through with our crowd of orders for high-grade hives. We are now behind 30 carloads, and shall be compelled to see to our regular trade first. The kind of hive that I spoke of in our list, listed at $1.25 in lots of 100, is a 1½-story hive, and should not in any sense of the word be compared with a home made one-story affair made of inferior material at 51 cents.* If there is a demand for hives made of knotty lumber, at less price, and if we can be assured that customers will not complain, we can furnish them an accurately made hive at a price that will compete with the local mill. Even if a manufacturer does have overhead expenses, he is able to buy in hundred-car lots, and put out hives made by machinery that will turn out by the thousands in one day the quantity purchased and the quantity made.

To make a comparison at all equitable, it should be based on the same kind of lumber, the same kind of covers, and the same kind of frames throughout, with or without tin rabbets, and with or without followers. On that basis the manufacturers stand on about an even footing with the local planing-mill when we consider the difference in the workmanship.

A few years ago I went through a number of bee-yards where there were home-made hives in use. There was not a cover or bottom-board that fitted properly. The boards were roughly sawn, and checked and split. The factory-made frames would fit some hives and not others. I distinctly remember watching the owner of one of these yards as he stopped every little while and whittled off the ends of his top-bars in order to get the frames into the hive. I remember, too, something about the fearful accumulation of burr-combs, due to the mix-up in bee-spaces. They varied all the way from ⅛ inch to ½. How he wasted precious time in tearing loose his combs! and the robbers!—all because the hives were improperly made.

The average planing-mill has not the facilities; and even if it does, its proprietor does not understand the importance of extreme accuracy in the construction of hives; and where one might be able to save money he might waste valuable time right in the height of the season, when he could least afford it.

Now, do not let me be misunderstood, for I fear that already it may look as if I were trying to grind my own ax. Perhaps I am unconsciously biased; but I have tried to state the matter fairly, as I know Mr. H. has. Taking it all in all, Bro. Hutchinson and I do not differ materially when we figure on *exactly the same equipment.*

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* It is fair to say that Mr. H does not make this comparison but a careless reader taking his data is liable to do this without considering all the factors.

GENERAL
CORRESPONDENCE.

THE LA BOUNTY ONE-PROCESS WAX-EXTRACTOR.

By Three Separate Machines.

BY S. O. LA BOUNTY.

[The reader will get a much better idea of this article if he understands at the very outset that this process of wax rendering involves first, a separate and distinct boiler or generator for steam, to stand on the stove; second, a wax-press located on a platform off from the stove, but having a steam-pipe connection to the boiler, and third a refining-chest connected to the last named. Although Mr. La Bounty does not say so, the idea of having a separate boiler is to get the wax-press down to a convenient working distance, and away from the hot stove.—ED.]

The extractor consists of three principal parts; 1, The generator; 2, The wax-press; 3, The refining-chest.

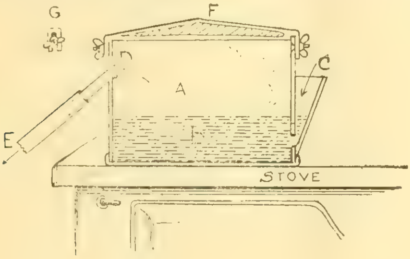

FIG. 1, THE GENERATOR.

In the generator, Fig. 1, B shows the water in the generator; C is the offset for pouring in water; D is the pipe connecting with the wax-press; E is a piece of asbestos hose connecting the pipe projection from the generator with that from the wax press; F is the steam tight cover; G is the fastening for holding on the cover.

In the wax-press, Fig. 2, A is the body of the press; B is the comb-basket; C is the follower; D is the plain part of the plunger-rod; E is the part of the plunger-rod having a thread cut on it; F is the handle-bars; G is the steam-tight cover; H is the part of the cover through which the plunger-rod passes; I is an escape for letting off the steam before putting on pressure; J J are the fastenings for holding on the cover; K is a projection or trough soldered on all around the inside of the press, in which water is placed. The upper part of the comb basket turns outward and downward into this water, thus preventing the steam from passing downward outside of the basket, and compelling it all to pass downward through the comb. L is the comb in the basket; M is the part of the comb-basket which is perforated. The upper half is not perforated, as it is not necessary; and the comb will melt more quickly if the steam has to pass downward through it before it escapes. N is the pipe leading to the refining chest; O is the pipe connecting with the generator. The plunger rod has a thread cut on the upper half. The lower half of it is plain. When the comb is first melted it can be easily pressed down half the depth of the plunger-rod by a simple pressure on the handle bars, and then screwed the rest of the way. This is done much more quickly than if there were a thread the whole length of the plunger-rod.

In the refining-chest, Fig. 3, A is the body of the chest; B is the steam-tight cover; C is the fastening of the cover; D is the receiving wax-dish having handles by which it may be lifted out, and a lip for pouring the wax out into other dishes for cooling; E is the compartment in which the wax strains and purifies when it comes from the press; F is the hot wax, and G the water on which it floats; H is a strainer through which it strains as it comes from the press; I is an observation-glass in the side of the chest, so that we may at any time see the height of the water in the chest; J is a stopcock for letting off water, as it will be constantly condensing, and some will occasionally have to be drawn off; K is the exhaust-pipe through which all steam should pass; L is a dish to receive the drip from condensing steam.

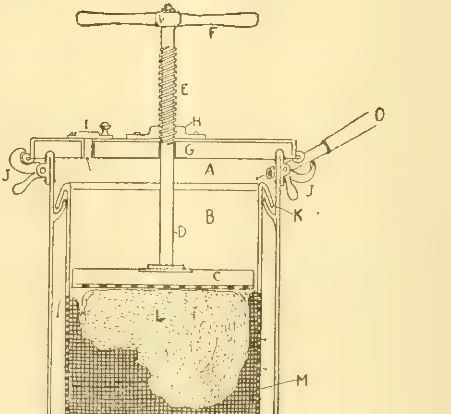

FIG. 2, THE WAX-PRESS.

The refining-chest should be high enough from the floor only to admit of putting the dish to catch the drip. The press rests on a box or platform near the stove, and should be as low as possible, but high enough to allow of a slant to the pipe which connects it with the refining-chest.

What are the advantages of this press? Rapidity, safety, and facility of operation.

The refining-chest may be used as an attachment to any wax-press or extractor by making the cover steam-tight; and the extra pressure given to the steam thereby will cause the wax to melt much more rapidly, besides doing away with the dangerous operation of remelting the wax.

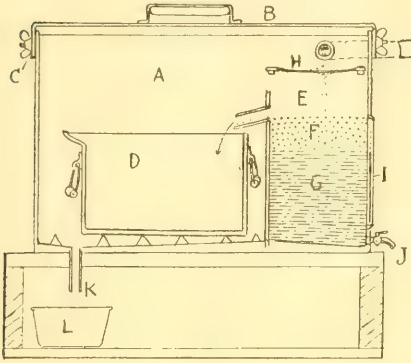

FIG. 3, THE REFINING-CHEST.

The press being fastened to a small platform or box which rests on the floor near the stove the operator can apply the pressure much more easily than he can to a press resting loosely on a stove, and where the handle bars will be at least five feet high when raised to their greatest height. The hot wax, instead of being on the stove-pan, where children are liable to tip it over and scald themselves, is in an enclosed chest. Instead of having to remelt the wax, it is all done at one operation. There is a constant pressure on the combs in the basket by the live steam, as it can not pass downward excepting through the combs. The steam, having so far to descend before making its exit, is under pretty high pressure, and will melt the comb more thoroughly and quickly than an extractor which stands on the stove, and from which the hottest steam passes through the pipe through which the wax runs. Lastly, the pressure is applied right in live steam. You will get every dram of wax. There will be no drip over the floor in transferring from the stove to a cold press, nor chilling when the pressure is not applied quickly enough.

Should the steam issue around the plunger-rod, a wet cloth may be wound around it next to the cover, which will effectually prevent it from coming out.

[If I mistake not, this general plan has not been carried out in its entirety by Mr. La Bounty. It is somewhat of a question whether enough live steam could be generated in so small and simple a boiler as is shown in the illustration, sufficient to force a pressure of hot steam into the wax-press and from there through the perforated metal basket into the refining-chest. It is my opinion, having had a great deal to do with the generation of steam, that a much more elaborate boiler would have to be provided. It would require a larger surface to the stove than is here shown. If any pressure were generated at all it would be quite liable to force the water out of the offset at C, as shown in Fig. 1; and it is questionable whether the steam could be forced from such a generator through the perforated metal in the basket at M, in Fig. 2; for it is understood, of course, that the trough at K is filled with water, and hence the steam must work its way through the mass of wax, which it may or may not do, depending on the pressure that is applied.

I learned from my own experience that there are a good many things on paper in connection with this matter of wax-presses and wax-rendering that had to be greatly modified after an extended and repeated test; and there are some things in connection with this method that will not work out as is here stated. However, a more elaborate boiler—something that would cost as much as the wax-press itself—would cause the steam to flow downward and cause a pressure in the wax-press. But there could be no offset at C in the boiler, for the water would be all forced out; in other words, it would boil over.*

So much by way of criticism. I trust the reader will not feel that I condemn all of Mr. La Bounty's ideas. He has suggested some good ones. First, it would be convenient to have the wax press off from the stove at a convenient height from the floor; and this could be done by having a boiler of the right design and of sufficient capacity. I believe the refining chest would be a good thing, for it is desirable to have the wax handled all at one heat, to save discoloration. Repeated tests have shown us conclusively that every time wax is heated it is darkened very slightly.

There is another feature that may or may not have merit; and that is, having the threads cut off from the screw from the point to about half its length. We use in our wax presses a double-lead thread by which one turn moves the screw down ¼ inch, and it is my candied opinion that one could turn this down quicker than he could get the threads into the mesh at H, Fig. 2. By the by, the lug H should be on the *under* side of the cross-arm, to stand the strain of the pressure. Whether this is a mistake of the artist or of Mr. La Bounty I can not say.

Taking it all in all, I question very much whether the average person would be willing to go to the expense of a generator, to cost nearly as much as the wax-press itself. By making steam in the wax-press, so that it can rise up gradually through the mass, it is not necessary to have pressure or an elaborate boiler. Till the pressure goes up five or ten pounds there is but very little increase in the heat of steam over mere vapor. I have had considerable experience in steam heat, and know this is one of the principles that have been laid down by those well up in the art; so I question whether very much will be gained by a separate generator except in the matter of convenience.—Ed.]

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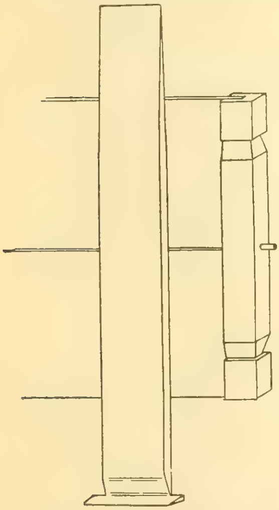
* Right here, perhaps, it would be proper to explain. Water pressure is in direct ratio to its height in a tank or standpipe. Roughly speaking, an elevation of two feet of water would give a pressure of about one pound per square inch. To generate sufficient pressure to force the steam up through the thread as spoken of in Fig 2 so that it would be necessary to confine it with a wet rag as explained in the last paragraph of the article it would require a water elevation of at least two feet at C, Fig 1, when, in fact, there is supposed to be only about two inches.

A COUPLE OF SUGGESTIONS.

An Excellent Metal-spaced Hoffman Frame; a Hive-tool.

BY L. R. FERGUSON.

I send a sketch and description of a hive-tool which I find very useful and convenient, fulfilling the requirements in more ways than any other tool I ever used.



THE FERGUSON HIVE-TOOL.

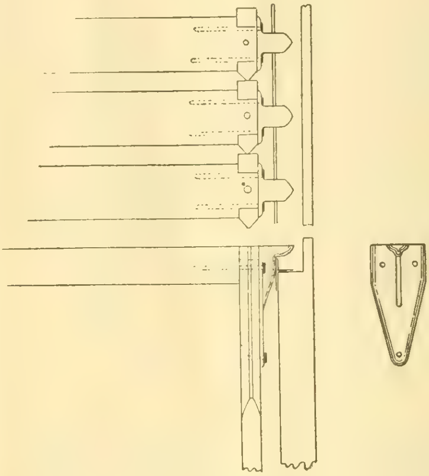
The one I use is 1⅛ inches wide and 12 inches long, and is made from an old flat file; but part of a leaf from an old buggy or wagon seat spring would answer very well, and require less forging to draw out the thin end.

The thin or chisel end being so wide, it will separate the hive parts without bruising them, as in the use of a screwdriver; and the extra length and strength enables one to reach any part of the hive to clean or scrape off burr-combs or bits of propolis, tighten up bottoms of frames (Danz.), loosen the division board, loosen bottoms and covers, etc., to much better advantage than with a shorter or more flexible tool.

When the end-bars of the division-boards are notched all around, about an inch from the end, as shown in the cut, no matter which side up they are inserted, the hook will easily catch in either the back side or end notches; but care should be taken not to notch so deep as to weaken the end-bars too much.

I should also like to submit for your criticism a plan for a cast-metal frame-hanger and end-spacer combined, which strengthens the cover of the frame and reduces the point of contact with the hive to the minimum.

In nailing up the frame, one nail should be driven down through the top bar into the end-bar to hold the parts in place, when two long barbed or cement-coated nails driven through the hanger and end-bar into the top-bar, and one short nail through the hanger at the lower end, and clinched inside the end-bar, would make a fastening twice as strong as the ordinary top-bar projection.



FERGUSON'S METAL-PROJECTION HOFFMAN FRAME.

But their principal merit would be in the fact they are so narrow that there is plenty of room between them for the thumb and finger, and the shape is such as to give a firm hold, thus making the handling of frames much more easy and rapid.

For use on the loose unspaced frame, the chances for propolizing are so small that no tool would ever be needed to loosen them; and by slightly denting or notching the tin rabbet at regular distances, so the hanger would catch in these notches when slid along the tins, these frames would become perfectly self-spacing; but care should be taken not to make these notches so deep as to interfere seriously with sliding the frames from side to side of the hive.

The outer ends of these hangers being pointed when a frame is stood on end to give the operator the free use of one hand, the point will enter the cover, or whatever the frame stands on, enough to prevent any slipping off and breaking out the combs.

The use of this hanger would not interfere with the standard goods in any way except in the one item of length of top bar; and even this could be sawed off from those already in use, and the iron nailed on, thus making useful many old frames with one ear broken off, or loose top bars, and these could then be used with the regular goods.

In repairing old frames it would be better to use a small screw in place of the small nail at the bottom when the latter could not be clinched tight on account of combs in the frames. This lower fastening so far down on the end-bar is where the extra strength would be obtained.

Harvey, Ill.

[Your hive-tool is quite similar to others that have been shown in our columns from time to time.

Your cast-metal frame-hanger I consider to be something of more than ordinary merit. Indeed, I am not sure but that it is the *best* metal spacer that has been so far suggested. I respectfully call Dr. Miller's attention to it as being something in the line of a Hoffman frame that can not be propolized to an extent as to render it difficult to handle. It can be applied to any frame in use (Hoffman or unspaced L.) by cutting off the top bar projections as you suggest. It could also be used with the regular Hoffman frames interchangeably. Perhaps a trial of the frame might change my good opinion of it.—Ed.]

FUMIGATING COMBS.

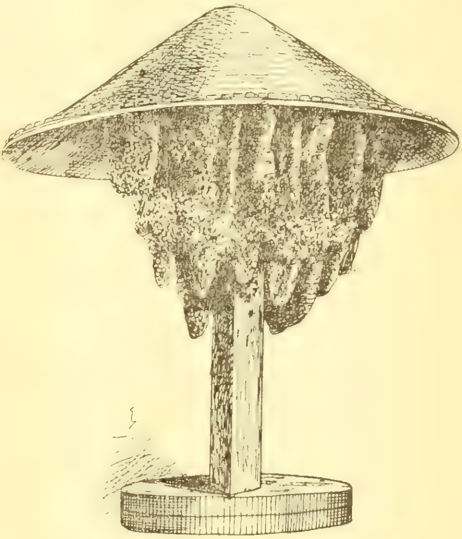
Long-tongued Bees in Germany; a Swarm in the Open Air.

BY F. GREINER.

Bisulphide of carbon has long been used by the American people for the destruction of vermin of various character. Bee-keepers have employed it to kill wax-moth and their brood, thus protecting combs and comb honey. As it is used here, the chemical is allowed to evaporate, which process produces an explosive gas. I have not dared to make use of it inside of buildings. Dr. Brunnich makes use of the sulphide of carbon in a different way. He says in *Schweiz. Bienenzeitung:* "Sulphide of carbon is a liquid which burns easily, and produces sulphur fumes, as it can not be accomplished by burning sulphur. The liquid burns slowly with a small flame, producing little danger of damaging the combs hanging directly over the burning liquid, which leaves no residue. Any one having used this chemical will never go back to *burning* sulphur."

A bee-keeping brother across the water is very much enthused over the long-tongued yellow queens from America. He says in *Bienen Vater*, "After reading so much about the redskins I made up my mind to send for the wonder. The cost, I cared little about; it was to be a test case. Well, the queen came directly from America, a splendid animal. Never in my life had I seen so large and beautiful a queen. After some difficulty she was safely introduced. During the first few days she laid but few eggs; but after a few weeks' time she began to do business. I was delighted to find the brood-combs in due time look like solid boards, not a cell being skipped. Soon young bees began to emerge. They were slightly lighter in color than the queen, and beautiful to behold. According to the American method I reared 19 fine large queen-cells, which nearly all produced very fine queens.

Bienen Vater, Austria, brings an interesting description and picture of a swarm of bees with comb structure built under a sort of cover, but not protected by hive-walls. The picture was taken during the first year of its existence. It has been wintered through several seasons by being protected by a large rough box being set over the whole. The owner, Herr Simmich, says, "I have made some interesting observation with my free hanging swarm. It has been surprising to me to see what a small cluster the quite populous colony had contracted to during the colder days, with the thermometer down to 26°. Bending the combs carefully apart at this time one could easily satisfy himself of a fact which is still doubted by some; viz., that bees in winter will occupy every empty cell inside the cluster. I also observed that bees are constantly in motion, those from the periphery changing to the inside.



AN OPEN AIR HIVE.

Naples, N. Y.

[I notice that you use the terms "bisulphide of carbon" and "sulphide of carbon." From the fact that you refer to Dr. Brunnich in connection with the sulphide of carbon, one is almost led to believe there is a distinction between the two. I am informed by one of our druggists that bisulphide, disulphide, and sulphide of carbon are all synonymous; but that the last-mentioned name is almost gone out of use. But I never detected any sulphur fumes with bisulphide of carbon. The odor was quite different; and this leads me to believe that you and Dr. Brunnich are possibly referring to another chemical.

I have wondered if it would not be an interesting experiment for several of us to make an open-air hive, something like the one shown in the illustration. It would probably be necessary to fasten in some combs, then put an inclosure around it until the bees had got the combs well filled with brood and honey; then remove the inclosure, and use the hive as an exhibit or curiosity to show to visitors. It goes without saying, that the colony should be powerful, or at least able to make a strong defense against robbers during a dearth of honey. Such an exhibit would be very interesting at a bee show or fair.—ED.]

EASTERN HONEY IN PAPER BAGS.

The Importance of Well-ripened Honey for Candying; a Valuable Article.

BY J. A. GREEN.

Dr. Miller wonders if the Coloradoans have a monopoly of the paper-bag package, and expresses the opinion that other kinds of honey than alfalfa might not work in paper bags — at least not without draining — while the editor is of the opinion that Eastern honey should be fully drained before it is put into bags. If it were not that I have so frequently come across such expressions in regard to honey produced in the middle and eastern States, I would almost want to rub my eyes and wonder if I am dreaming when I imagine that I once produced honey in the East. Why, Dr. M. and E. R., back in dear old Illinois, not so very many miles from Marengo, I have produced tons of honey from which, when fully candied, you could hardly any easier have drained any liquid, without melting it, than you could from a newly burned brick! I have also bought Wisconsin honey that was almost as hard and dry as any alfalfa honey. Furthermore, fifteen years or so ago, when I lived at Dayton, Ill., and wrote for GLEANINGS somewhat oftener than of late years, I put up honey in paper myself—not in bags. I did not get quite that far. Still, it was in paper, and it worked all right.

Although I had sold a great deal of candied honey in pails and various other small packages, I had never found any way in which any quantity of candied honey in small packages could be disposed of without personal solicitation. As I studied over various schemes for remedying this condition of affairs I was impressed with the immense quantities of sweets that were consumed in the shape of confectionery. I reasoned that, if we could only put up honey so that it could be sold and eaten like a caramel, for instance, a new market for enormous quantities of honey could be secured.

By folding little squares of paper about a form, I made me a number of little boxes of various sizes, from an inch square to some holding a pound of honey. These little boxes, square or oblong, were set closely together in a shallow tray, to make them keep their shape; honey was poured in, and they were set away to harden, after which the edges of the paper were folded over the top. In some respects the results were very satisfactory. I had neat square packages of dry hard honey that kept in perfect condition until the heat of summer. But I decided it was too much labor for the busy beekeeper to undertake. Commercially, the manufacture of a candy that required days, or possibly weeks, to harden, instead of minutes or hours, and that could be made only at certain seasons of the year, would require too much in the way of space and fixtures to be profitable.

My larger packages were intended to be sold for table use, but my experience in that line had been so discouraging that I did not grasp the possibilities of the situation as Aikin did, but dropped them along with the rest, and relegated the whole to the limbo of many another of my brilliant schemes.

The point I wish to make is that the honey of Illinois, and probably that of most of the other States, if of good quality, and properly handled, is nearly as well adapted to use in a paper package as that of Colorado.

There are two points that should be observed. First, the honey must be thoroughly ripened — not that which has been extracted when only a third or a half of the cells were sealed, but that in which every cell has been sealed; and it is all the better if it has been allowed to remain on the hives or in a very warm place for several weeks after this. I think nothing has done so much to discourage the use of extracted honey as the marketing of an article a considerable proportion of which is thin, raw, and unripened. Such honey will not candy perfectly.

The second important point is that the honey should never be put into the final receptacle before it has begun to granulate. Leave it in your honey-tank or other large receptacle until it begins to granulate, then stir thoroughly and draw off into the small packages. The stirring changes the mode of crystallization so that honey that would granulate with coarse crystals, with more or less liquid between, granulates with a fine grain, hard and dry. Besides this, it will be considerably lighter in color. Simply waiting until the honey begins to grain, then drawing it off, will usually suffice, but the stirring is much more effectual.

Instead of the waxed paper sacks that have been thought necessary, I would use those of ordinary paper, and, if desirable, in order to make a more sightly package, or avoid any chance stickiness, put another wrapper of paper around it. A very annoying feature of the waxed sacks that have been sent out is that almost all of them will leak; whereas the ordinary paper sack, even those of light weight, will usually hold honey perfectly.

Grand Junction, Colo.

[Yes, I remember when you were working and experimenting with extracted honey; and I recall, too, some paper packages that you sent us for inspection. At the time, we (father and I) considered them a great acquisition, and we thought they would make quite a furore in the bee-keeping world; but perhaps, as is the case with so many other things, the times were not then ripe for it, and it had to go over till the present.

We have put up candied honey ourselves that was as dry and hard as any Colorado product I ever saw; but, nevertheless, it is a fact that a good deal of the honey in the East is not solidified entirely. An examination of the bottled honey on the grocery shelves will show this. Then it is true that Eastern honey does not have quite the tendency to granulate as does the ordinary alfalfa honey of Colorado; and it should, therefore, be handled with some degree of caution.

We have been putting up candied honey in paper very successfully during the past month; but we find it better to allow the honey to granulate in a large can so it is about as thick as soft mush, but not so stiff that it will not run out of a large gate into paper bags. It is allowed to stand in a cold place for about two weeks, when it will be nearly as hard as a brick. We have lots of candied honey put up in Aikin paper bags on our shelves, that look as perfect and nice as any put up by friend Aikin himself.

The two points that you emphasize, of having well-ripened honey, and then having it partially candied before being finally put up in receptacles, are very, very important. The same things are emphasized in the symposium in our last issue.

By the way, friend Green, I wish you would let your light shine as it once did in years gone by. I am sure you are constantly picking up new ideas, and the bee-keeping world would greatly appreciate it if you would write as you used to do when you held forth in Illinois. I used to count J. A. Green, when I took editorial charge of this journal, as long ago as 1885, as one of the reliable standard writers. I used to put him on a level with Dr. Miller, G. M. Doolittle, and others I might name. I would like to put him in the same honorable crowd now if he would favor us with his presence, even if only on paper. I am sure that a dry climate like that of Colorado can not have dried up all his ideas.—Ed.]

BAGS FOR CANDIED HONEY "A GRAND SUCCESS;" EASTERN HONEY ENTIRELY SUITED FOR THE PURPOSE.

For years we have been putting up extracted honey mainly in glass in summer—pint and quart Mason jars (sometimes with a piece of comb in also), and in fall and winter we used three, five, and ten pound lard-pails painted in various bright colors, and stenciled. The honey here nearly always candies; and when it candied, we generally sold most of it that way, pinning on the handle of each bucket one of your honey-leaflets, with price and kind of honey written on it, and also sticking on one of your little "Take Notice" tickets, telling how to liquefy the honey.

But the pails did not just suit us for candied honey. We wanted something that would mold the honey into a good shape, and when we first read of the bags we said they were just what we had been wishing for; so we sent to you for a lot of them, and they are a grand success. People who like candied honey say they are the nicest thing they ever saw; "like it better than comb honey;" "didn't know candied honey was so good," and many are learning to use it that way who never used it before.

One lady in the South, who has honey that does not candy, to whom I sent some of the small bags, says, "The honey is superb; esthetic sweetness; beautiful to the eye, the touch, and the palate; better than the best cream candy."

The smaller sacks are used whole on the table. The larger ones people slice right off through the paper, and then peel only the slice, so the rest keeps nicely in the sack. This winter we sell liquid honey only in buckets and cans, and candied honey by the sackful, and we don't know whether there is any one else now living who can invent nicer packages for extracted honey. But our honey candies perfectly dry and hard—not a drop of liquid, sticky, inferior portion to it, and so it doesn't need any draining or refining or purifying; and if we heat it no scum will rise. We make the bees do all that work, and ripen it up to 12 lbs. to the gallon. Our ripest and thickest honey always candies first; and this year we had to hurry to get it into the sacks before it should get too thick to run; and by Oct 22 we had honey by the sackful on the market. Mrs. M. A. Shepard.

Barry, Ills.

[This emphasizes the point made by Mr. Green, that the honey must be thoroughly ripened. We should be glad to hear from others who have used the bags.—Ed.]

HONEY THAT DIDN'T CANDY IN A ZERO TEMPERATURE.

While liquefying honey this winter out of sixty-pound cans to put up in small packages, two cans were neglected and left out in a woodshed where the temperature ran 10 below zero. One can of the first extracting and one of the last, to my surprise, were not the least bit candied, while all that were kept in a warm room were candied. Then I divided both cans, putting half in a warm room and the rest back in the cold. What I put in the warm room soon candied, while that left out in the zero temperature remained liquid. As this is so contrary to the teachings, I thought I would mention it. J. F. Orishaw.

Hastings, Ont., Jan. 25.

[Why, friend O., this is certainly contrary to all my experience. I should have said what you kept in a warm room might candy or it might not; but that exposed to a zero temperature I should have felt sure would candy hard and solid. Has anybody else had a similar experience?—A. I. R.]

LANGSTROTH'S INVENTION OF THE BEE-SPACED MOVABLE FRAME.

His Claims of Priority Well Established; the Cruel Persecution that was Waged Against him Years Ago.

BY H. J. O. WALKER.

Mr. Root: — I subscribe to Gleanings through the *British Bee Journal*, and I am now trying to obtain a little information from you. Kindly read the following extract, translated from "Nouveau Manuel complet du Proprietaire d'Abeille, etc.," by A. Martin. Paris, 1828.

BLAKE'S HIVE.

This hive is used with much success in America It consists of a square box, of which the upper part is a hinged cover. At about two-thirds of the height of the box is a horizontal partition formed of small bars only three lines ($\frac{3}{11}$ inch) apart. On this partition are placed rectangular bottomless boxes, shaped like a drawer, in sufficient number to fill all the space above it. The cover is then shut down. To take honey, the boxes are removed by means of rings attached to their upper face, when fresh boxes can be substituted.

Buzairies, in his "Hives Ancient and Modern," Paris, 1863, page 40, inserts the above extract from Martin, introducing it as follows: "To find the first example of a frame hive with two stories, we must seek it in the New World. Blake appears to have been its inventor." He gives in illustration a sketch of a hive ,apparently drawn to suit Martin's description. Martin gave no illustration.

The substance of the above quotation from Martin also appeared in Italian in the Florence *Journal of Science* in 1825.

I want you to be kind enough to inform me from your own knowledge, or from those who ought to know, whether there was any published authority on your side of the Atlantic; and, if so, what, for this description of Blake's partition super hive? You are well aware how, when the validity of Langstroth's patent was in question, any thing previously in use in the nature of a frame hive, such as those of Prokopovitsh, Munn, etc., was freely discussed; but I have sought in vain for any mention of Blake in the journals of the period. I am unwilling to believe that Martin was drawing on his imagination. Will you, then, help me in this matter in which I am particularly interested? I can think of no one else so likely to be able to do so.

Leeford, Eng., Dec. 12.

[We have copies of all the patents that have been issued on any thing pertaining to bee culture in the United States. No American patent touching the subject of hives or bee culture in general was issued before 1831; and it is surprising how large a number were introduced during that year, indicating that there might have been a general awakening about that time. But Mr. Blake's name does not appear among these early applicants.

I have recently been over the subject in the old volumes of the *American Bee Journal*, reading with considerable interest (and disgust) the cruel controversy that arose during the late 60's and early 70's over the validity of the Langstroth patent covering the use of movable frames, and assailing Langstroth's personal honor and integrity as well. His opponents searched the world over for some scrap of a description antedating the principles set forth in the original Langstroth patent. While they referred freely to Munn, Prokopovitsh, Berlepsch, Dzierzon, and Debeauvoys, and perhaps half a dozen others, no mention, so far as I am aware, was made of this man Blake.

From the meager description you have furnished, there is no evidence to show that he in any wise anticipated the Langstroth patent; for it must be understood that Mr. Langstroth did not claim to invent movable frames; but he did claim to invent the first *practical* frame for handling bees. His patent covered the principle of a bee-space around the frame, top, sides, and bottom, and a bee-space between the frames, the same supported by a projection or a continuation of the top-bar in such a way that any one of them could be removed without tearing or breaking loose the propolis connections between the hive and frame except at the small point of contact in the rabbet where the frame was supported.

In later years, I think about 1886 or '7, the late Charles Dadant went over this whole ground again. No man was better posted on this subject than he, for he was cotemporary with Langstroth and all the early writers when this subject came up in the early days. After a full and thorough investigation based on new developments he gave it as his opinion that no one had anticipated Langstroth in his invention of a bee-spaced movable frame. This opinion is concurred in, I believe, now by all the best writers in Europe, prominent among whom may be named Thomas W. Cowan, editor of the *British Bee Journal*, who probably has a larger library relating to bees than any other person in the world. In this connection I might remark that we have here at our own office a very complete library of old bee books, some of them so old that they go clear back to the time of the first printed translation of the Bible in English. In not one of these old volumes is there mention made of a frame that embodied the principle of the original Langstroth frame patented in 1852.

It is one of the *burning shames* that so good a man as father Langstroth should have had hurled at him the abuse and calumny that was heaped on him by the early apicultural writers from 1868 to 1872. But now that the smoke of battle has cleared away, calm judgment without prejudice has shown that Langstroth was not anticipated; and the whole apicultural world is glad to do honor to the man who made the first great invention to simplify hive manipulation and to make possible the immense progress that has been made in these latter days.—Ed.]

* * *

WHAT KIND OF FOOD TO GIVE COLONIES SHORT OF STORES.

Some Interesting Experiments Showing Candied Honey to be the Best Winter Food.

BY JOHN FIXTER.

Owing to the past unfavorable season for honey-gathering in the Ottawa Valley, many letters have been received from people who have only a few colonies of bees, stating that, when carrying their bees into winter quarters, they had discovered there did not seem to be a sufficient store of honey in the hive to carry the bees through the winter. To gain information as to the best method of overcoming this difficulty the following experiment was tried with six strong colonies of bees.

Four frames of sealed honey were taken from each of the six colonies, leaving the cluster on the four remaining frames. The four frames were left in the center of the hive with a division-board at each side, and some light packing was placed between the division-boards and the sides of the hive. The wooden covers were removed, and a large propolis quilt made of heavy canvas was placed over the top of each hive. Over the top of the propolis quilt extra packing was placed to keep in the heat, absorb moisture, and prevent drafts or upward ventilation. The bottom-boards were left on as they came from the bee-yard, leaving the entrances wide open

The experiment was as follows:

1. Two colonies received maple sugar of the best quality.
2. Two colonies received candied honey and sugar.
3. Two colonies received partly filled sections of honey.

Each colony when put on this test weighed 31 pounds, and each was given 5 pounds of its particular food to start with. The experiment lasted from November 18, 1902, to March 22, 1903.

The two colonies fed on maple sugar consumed 11½ pounds each. They were examined every two weeks, and water added to the sugar through holes in the tops of the cakes, keeping it soft and moist.

The two colonies fed on partly filled sections of honey consumed during the same time 14¾ pounds each. There was, for several reasons, considerable waste in this test; and if partly filled sections could be sold even at a reduced price it would be advisable to do so instead of feeding back.

The two colonies that were given candied honey consumed 10¾ pounds each. The candied honey was moistened at intervals, which made it easier for the bees to suck up

Candied honey is made as follows: Take good thick clover honey and heat (not boil) it until it becomes very thin; then stir in fine granulated sugar. After stirring in all the sugar the honey will absorb, take it out of the utensil in which it has been mixed, and thoroughly knead it with the hands. The kneading makes it more pliable and soft, so that it absorbs (or, rather, takes up) more sugar. The kneading operation, with the adding of fine sugar, should be continued until the dough is so stiff as to be quite hard to work. It should then be allowed to stand for a day or two; and if at the end of that time it is so soft as to run or to be sticky, a little more sugar should be kneaded in. It should be cut into convenient-sized cakes, and placed on top of the frames in such a way that the bees can get at it easily.

The colonies in all three tests came through in excellent condition. Any one of the three methods may be safely followed; but I would strongly recommend examining and weighing all bees the first week in September. At that time every colony should have a good laying queen, and should weigh over 50 pounds. In seasons when there is no fall flow of honey, all colonies in Langstroth hives weighing less than 50 pounds in September should be fed up to that weight at least.

The best method for getting colonies up to the required weight is, when extracting, to save several full well-sealed combs, then remove some of the light ones out of the hives and replace them with the heavier full frames. If no honey is available, feed sugar syrup. This latter plan is a rather tedious one, and great care must be taken not to daub the hives or appliances, as robbing at this season of the year is very easily started, and very hard to stop.

Sugar syrup may be made as follows: Use the best grade of granulated sugar, two parts to one of water, by weight. The water should first be brought to a boil, then the pan or vessel set back on the stove so that the boiling will not continue, but the water be kept sufficiently hot to dissolve all the sugar.

The sugar should be poured in slowly, and thoroughly stirred until all is dissolved. The syrup should then be fed in a lukewarm condition.

Experimental Farm, Ottawa, Can.

[These experiments are interesting and valuable, more especially as they confirm the result of similar experiments made by others.

It would have been interesting to know what the consumption of stores would have been in the case of a colony fed on pure sugar syrup. It is my opinion that the loss would have been less than any of the other foods above described. The idea of using candied honey as a winter food is a good one. When one is short of combs of sealed stores this will make an excellent substitute.—Ed.]

The Fust Time (an' the Last).

[While on a recent visit at Medina, artist Murray took an automobile ride with A. I. R. around town, and finally down to our cemetery. In one of his private letters he sent us a sketch and a few lines of verse describing his sensations while on this ride. For the benefit of our readers we reproduce the whole here.—Ed.]

ARTIST MURRAY'S SENSATIONS WHEN RIDING IN THE AUTOMOBILE WITH A. I. R.

Whew! Yer feel sorter dizzy round the legs,
  When autoing first takes hold,
An' kinder shivery down the spine
  With spells of hot an' cold
Yer feel the feathers on yer back
  Puff up an' move about –
Yer "confidence" has taken wings,
  An' yer innards all turned out.

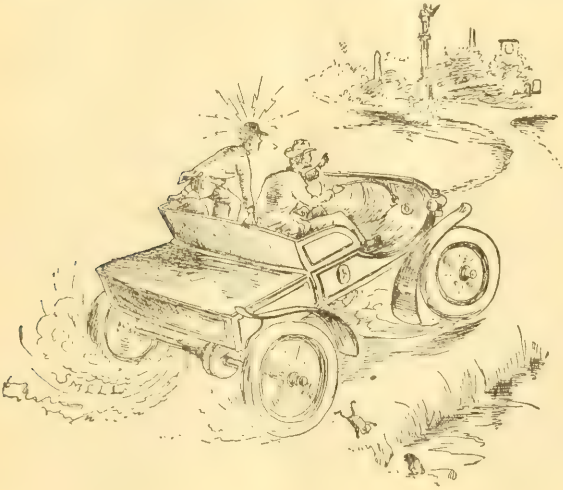
Things seem allfired on e-knee,
  An' yer swallow mighty fast,
Fur yer don't know how things 'll end,
  Nor how long the spell will last.
As yer bounce 'tween heav'n an' earth,
  Yer feel quite serious round the gills,
And things go twistinizing by,
  Each one in fancy frills.

Land sakes! why was I ever coaxed
  Into th' tarnal pesky thing?
Thar ain't a blessed thing ter grab
  'Cept that chaffer with his grin.
No doubt he thinks it's awful fun
  Ter jerk the thing about;
But I tell yer, yer feel quite odd
  When half way in an' half way out.

Gimminy crout! Mr. Chaffer,
  Don't yer see that pond ahead?
Monuments ain't of interest,
  Nor tales where heroes bled!
Great scott! Just let me outen this—
  It's no place here for me—
An' I'll put up a pater-nostrum,
  An' howl aloud in glee.

I ain't hank'ring now to fly
  By the Darius or Langley way;
Jes' let me feel my feet on ground,
  An' there, by gum, I'll stay.
Bet you'll have to take a derrick
  To get me on again
To sit beside that chaffer bold,
  "Jes' to have a leetle spin!"

Cleveland, O. R. V. Murray.



Heads of Grain from Different Fields

WHAT IS BEE-POISON?

Regarding bee-poison, I inclose a copy of the paragraph I was looking for when we were discussing the topic. It was in another book after all—one that I had recently been reading.

By the way, the book from which the extract was made is particularly interesting. It is entitled, "The Cambridge Natural History." Arthur C. Miller.

Providence, R. I.

> According to Carlet, the poison of the bee is formed by the mixture of the secretion of two glands one of which is acid and the other alkaline; it is very deadly in its effects on other insects. We shall see, however, that the fossorial hymenoptera, which catch and sting living prey for their young, frequently do not kill but only stupefy it, and Carlet states that in this group the alkaline gland is absent or atrophied, so that the poison consists only of the acid; it is thus, he thinks, deprived of its lethal power. Moreover, in the fossoria the needles are destitute of barbs, so that the sting does not remain in the wound. Bordas, however, states that in all the numerous hymenoptera he has examined, both acid and alkaline glands exist, but exhibit considerable differences of form in the various groups. He gives no explanation of the variety of effects of the poison of different aculeata.

[I will explain that Mr. Miller and I met recently in Boston, at the place of business of Mr. F. H. Farmer. We were discussing the nature of bee-poison, when Mr. Miller said he had just been reading something bearing on that very question, and would send me the reference later, and here it is.—Ed.]

OBJECTIONS TO FENCES; BUT PLAIN SECTIONS FAVORED.

To produce our crop in the very best way many things have to be considered that even old timers have not thoroughly mastered. The first step for the next year is taken when you order your sections, and bee keepers are not at all agreed which is best. I had about all kinds the past season, as I ran short and had to use what I could get; and such a conglomeration I hope never to have again. Now, while scraping and crating the honey I did a whole lot of thinking. I have used the four-piece 4¼ sections for many years, and, notwithstanding the higher cost, I still prefer them. The same-sized one piece plain sections, however, run them a very close second. Indeed, the latter have some advantages that may induce me to adopt them exclusively. One reason is that they take less space in the shipping-cases. Then, too, they cost less, and can be put together more quickly.

As to separators, my conclusions do not favor the fences. I have used these quite extensively; but with me there is too much trouble with brace-comb; also, in a few years the bees will gnaw the strips and thus leave the combs ribbed. I do not think I am mistaken as to the greater liability of the bees attaching more combs to the fences than to plain smooth wood separators; and I notice that the trouble is worse when the tall sections are used. I now use the plain wood separators with the strips glued on, as on fences, as I can see no use for the spaces between strips any way. Many years ago Betsinger tried to introduce a wire-cloth separator of ¼-inch mesh, and what a failure it was! Not only did the bees attach lots of burr-comb to it, but I actually had them use these separators for the middle of the comb, probably mistaking them for some new-fangled kind of foundation. I trust that I shall not interfere with the Root Co. in the sale of fence separators; but we all want to know the facts in the case, and it will be just as easy to make a solid board separator as so many strips.

The prospect for a good honey harvest in 1904 is so far all that can be desired, and much vexation and hurry can be saved by preparing every thing possible for it now.

Milan, Ill. C. H. DIBBERN.

[We want the truth, cut where it may. Let us have reports.—ED.]

WHY THE BEES DON'T PAY ON THE COAST AT SAN FRANCISCO, CAL.

I was about to start with a hive or two in connection with my chicken-ranch; but a few years ago a man started here and gave it a good trial, and for some reason or other he gave it up. He went then and started somewhere about six miles from Los Angeles, and is now doing well with the bees. Before he left here he got some experienced bee-men to come to his place to see if they could find out why the bees would not work. He had also to feed them with sugar in the winter or else they would eat all the honey. These men could give no reason why the bees would not work, except that they might be too close to the salt water, this place being only about one mile from the sea.

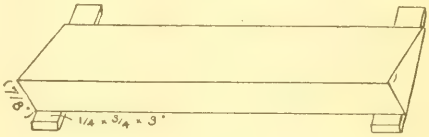
There are also a great many fogs here, and perhaps that may have something to do with it. I have one of four hives which I got at Smith's cash store, San Francisco, and find that the frames are only half as deep as his, and that may also have a little to do with it. J. LEWIN.

San Francisco, Cal.

[The seasons vary in California, and in southern portions of the State there are only about two good seasons out of five, so that some years the bees practically starve to death; in fact, thousands of colonies have died in the off years. The keeping of bees along the coast is not nearly so profitable as a few miles inland. A mile or so from the shore, in the vicinity of San Francisco, is too cold, usually, to get good results. If you go inland about ten miles it will be warmer: but be sure to get into a territory where alfalfa is grown, or the bees might starve to death. You can, however, keep a few colonies in connection with your chickens, and get fairly good results; but the further you can get them from the cold winds of the ocean the better. The writer does not know of any extensive bee keepers directly on the coast in the vicinity of San Francisco. As a rule you will find them a few miles inland, where it is warmer.—ED.]

ATWATER'S ENTRANCE-CONTRACTOR.

To-day, while looking at one of your bottom-boards with a deep entrance, I was wishing for some simple and cheap entrance-contractor and mouse guard, and, presto! I had the idea. I made one at once, and it



fills the bill. It does not need to be tacked in place, as its wedge shape allows it to be *pressed* into the entrance. It fits any depth of entrance. from ⅜ to 1⅛ inches deep, when made of ⅞ lumber, and contracts them all to ¼×9½ inches, which is mouse-proof. If mice should ever gnaw them, which I doubt, coat with carbolineum, which is more than distasteful to mice, but no detriment to bees when it has dried thoroughly. E. F. ATWATER.

Boise, Idaho.

[This is an excellent idea. Perhaps the supply manufacturers better furnish them to the general public. I have seen nothing any better for the purpose, or rather, I should say nearly so good. The fact it will fit any standard entrance in use, and hold its place, are two strong points in its favor.—ED.]

DEATH OF W. R. GRAHAM, OF TEXAS.

Nov. 27, 1903, W. R. Graham, of Greenville, Tex., passed away. He was one of the leading bee keepers of Texas, and has always, up to within a few months of his death, been willing and ready to assist bee-keepers in any way he could consistently. Mr. Graham was born in Jonesville, Va., Jan. 14, 1828. He professed religion in his nineteenth year. He was married to Miss Eletta Poteet in 1851. He was the father of nine children, of which five survive him. He moved to Texas in 1874, settling in Greenville, where he has since lived. He organized the Texas State Bee-keepers' Association, and was its president for several years, when the late Dr. W. K. Marshall was elected president until death; and at the next meeting after Dr. Marshall died, Mr.

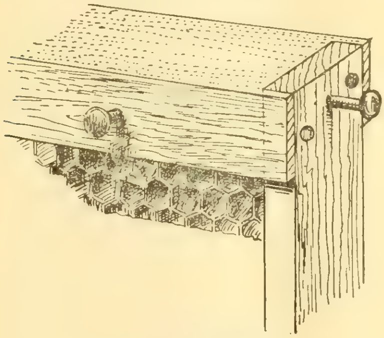
Graham was elected president for life. His occupation from childhood was bee-keeping; and after coming to Texas he also manufactured bee-keepers' supplies. He was always pleasant to all about him, and never seemed to tire of talking bees. He has often remarked to the writer that, when he had honey to sell, he was always able to rattle silver in his pockets. He managed bees by hundreds of colonies, and was always successful. His kind words and pleasant smiles will be greatly missed at the convention, and by those who lived around him.

A FRIEND.

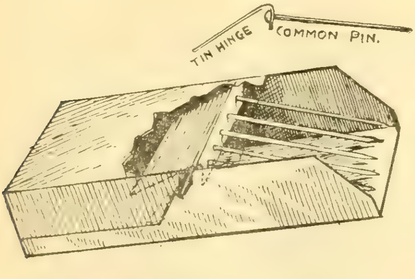
CLEVELAND'S BEE-ESCAPE AND NAIL-SPACED BROOD-FRAME.

I am sending you a box containiag a bee-escape, and also a corner of a brood-frame which I got up recently.

You will, of course, see the "points" of the brood-frame. It is "non-gumable," self-spacing, and strong. The ends give better room for nailing than other frames; are stronger, and can not be put together with a "wind" in them. A starting hole should be made in the end-bar for the hang-nail to prevent splitting, and insure accuracy. The head of the nail is to hang over the rabbet tin, and to do end spacing without staples. They are cheaper to make than the Hoffman, and stronger in construction than any I have seen.



CLEVELAND'S BROOD-FRAME.



CLEVELAND'S BEE-ESCAPE.

The escape I make myself, and have used it in my apiary two years, and like it better than any other. To operate, a stick to close a hive-opening is notched to take in the escape. The super is taken off and set on an ordinary bottom-board, and a cover put on, and the escape applied to the entrance, when it may be set on top of the hive, or several supers may be piled up where convenient.

The advantages I find in it are, the bees are disturbed but once; no special bottom-board is required; several supers may be put in a pile, and the escape is on the outside, the natural place for the bee to go to get out. Practically it works to perfection.

Hinsdale, Ill. R. D. CLEVELAND.

[This escape is, no doubt, a very good one; it is, however, old. The principle of it is practically the same as the one shown in our issue for May 15, 1891, page 430, but patented as far back as June 26, 1860. In our A B C of Bee Culture for 1891 we showed an escape making use of a row of pins pivoted to a common shaft, the same as is shown in the illustration below. This, Mr. Walter S. Pouder brought out in 1884; so it appears that this form of escape is the oldest known.

The objection urged at the time against this "flood-gate" principle was that the pin-points would become propolized down. The same objection would apply to the one here shown, in some localities and with some bees. When they become gummed up too badly they could be readily cleaned by immersing in hot water.

The brood-frame here shown embodies the well-known principle of frame support and of frame-spacing. The correspondence in our office shows that quite a large number of people have been using this principle for many years. It has been illustrated in various forms for a number of years back.—ED.]

THE STARKEY COVER.

I noticed, on page 71, Mr. H. H. Root's description of Mr. E. E. Starkey's hive-cover. I should like to hear from Mr. Root as to how Mr. Starkey keeps bees from building in the same. Please give depth of cover. W. H. RAGAN.

Thibodeaux, La., Jan. 23.

[This was referred to H. H. Root, who is attending school at the Northwestern University at Evanston, Ills. He answers as follows:]

Perhaps in the article referred to I did not make the description of the hive-cover sufficiently clear. It might be called a telescopic cover, three inches in depth, with the sides or walls of wood, and the top or roof of water-proof canvas. This canvas lies right on the tops of the frames. The bees can not get into the cover at all, for, no matter how much the frame warps or twists, the canvas will always lie flat upon the top of the hive. H. H. ROOT.

CONSUMERS GETTING DISGUSTED WITH THE CHEAP CORN SYRUPS.

You spoke of cheap syrup on the market, Jan. 1. Why, the country stores are full of it here in Maine, under the name of corn syrup, golden drip, etc. But the stores that

I furnish with honey, are going out of it. I was in a store last summer where they had it in glass tumblers, with a small piece of comb in the middle, and labeled "white-clover honey." I told the grocer it wasn't honey — it was glucose. He said he knew it, and it didn't sell worth a cent. I sold him 28 lbs. of comb honey, and that was all sold before a week. The next time you come to Maine, make me a call.

N. Palermo, Me. G. F. TURNER.

[I made only a flying business trip up into your State, stopping only long enough to see Mr. J. B. Mason, of Mechanic Falls, and returning the same day. I thank you for your invitation, and will try to bear you in mind when next I go into your State.

Say, I should like to know whether it is true in other localities that consumers are getting tired of these cheap corn syrups. Some of them are positively vile. Let us hear from others.—ED.]

FINDING QUEENLESS HIVES BY THE "HUM" OF BEES AT THE ENTRANCE, ETC.

I began the season of 1903 with 14 colonies; and as they had done so badly the year before I had to feed nearly all winter; and when spring came they had to be fed. But I got them built up so they began to swarm about June 1, and I let them swarm.

I bought two swarms of a neighbor for 55 cents each, or 10 cents a pound, and furnished the hives; then I got three swarms in the woods, where I took up bee-trees by saving the brood combs, so when fall came I had 40 colonies and about 650 lbs. of comb honey.

In passing through the yard in the latter part of September I could tell by the hum of the bees which ones were queenless. I found that I had five queenless, so I set to work to give them queens; so when I was called to take up honey for my neighbors, and found a queen to suit me, I would just save her; and the bees take them home and run them in.

BUYING BEES IN THE FALL THAT NEED FEEDING UP.

I got the other day in a trade, nine boxes of bees, some in boxes of unnamable shapes, so that the nine gums of bees cost me, all together, only 75 cts., varying in weight from 33 to 83 lbs.; and with a little feeding they will *all* pull through.

Holden, Mo. GEO. H. WELLS.

[That is a good point, friend W., about finding queenless colonies by just looking and listening at the entrance. In visiting bee-keepers I have often pointed out colonies that were queenless by the action, and by listening, as you state. Any one can learn to do this pretty surely by practicing whenever he has a chance. A colony without a queen, and without brood, shows a lack of life and spirit, and the sound made by the bees seems to be a sad and mournful hum compared with the roar of a hive that is full of brood and wideawake young bees. It is also true that, a great many times, one can find bees in old boxes, that need feeding for winter, where the whole outfit can be bought for a mere song. In my early years of bee culture I made it a point to buy out everybody who wanted to quit the business; and we do that to some extent even yet. The beginner should be careful, however, and not offer a larger price than he can afford to pay. It is quite a little bother to go after bees, transfer them, and feed them up so as to make a sure thing of wintering.—A. I. R.]

YELLOW-JACKETS DESTRUCTIVE BEE-ENEMIES IN BRITISH COLUMBIA.

In your issue for Dec. 1 you reply to F. W. Knoeger on yellow-jackets. You apparently appear to think wasps are not so very destructive as some make out. Permit me to say that I have experienced considerable trouble from them in the autumn here, having watched them often as they boldly enter the hive, in most instances being attacked, but, so far as I could see, coming out victorious, usually cutting the bee in two, and making a meal of it, after which they re-entered the hive unmolested. You don't give them any notice as bee-enemies in your A B C.

However, all that can be done is done. The entrances are contracted; jars with syrup are placed here and there. This plan catches a lot of them, and, lastly, rewards are given to those finding their nests. While writing you from a country where we have a lot of rain in the winter, with very little frost, and then never down to zero, let me ask, is it advisable to put the bees under a cheap open shed with only a roof, or to leave them on their summer stands under the rain? GEO. H ROE.

Courtenay, V. I., British Columbia.

MOSQUITO-HAWKS AND YELLOW-JACKETS IN FLORIDA.

On page 1010 W. H. Marshal, of Punta Gorda, Fla., writes of the mosquito hawk, or dragon-fly, and of its destructiveness in the apiary. I also am troubled by this pest, at times, but not to the extent Mr. Marshal seems to be; and my experience as to their time of flight is somewhat different from his. Here they fly more strongly in the evening, or, rather, late afternoon, and in the early morning, and but rarely in the middle of the day unless it be a dull cloudy one. I must admit that my bees appear to be less intelligent than Mr. Marshal's, or more reckless; for when there is any thing for them in the fields they persist in going out for it, regardless of mosquito hawks.

On the same page Mr. F. W. Knoeger tells of an attack by yellow-jackets on his bees. They have been very troublesome to the bees here this fall; in fact, I have never seen them any thing like so numerous before; but I can not find where they have effected an entrance in any case. Great numbers have been killed by the bees, as their bodies in front of the hives testify. I saw them in several places working at the bodies or fragments of bees, seemingly in an effort to extract what juices remained, or possibly they make use of the more solid matter. C. S. Harris.

Holly Hill, Fla.

YELLOW-JACKETS IN COLORADO; HOW TO KILL.

I see on page 1010 the yellow-jackets are causing Mr. Knoeger's bees to desert their hives. I think he is mistaken. If he will notice closely he will see that they eat the bees alive, then rob the hive. They killed eight colonies for me last summer. They came by the thousands. I tried to poison them, but could do no good. I stopped the entrance of the hive, then took a pan and set it in front with a chunk of honey in it. They would gather on the honey. I would then throw hot water on them. There is not much danger of hurting your bees. I took a colony that they had killed, and opened the hive-entrance, and waited until it was full; then I stopped it up; but I first put some burlap over the brood-frames; then I poured hot water over them. I am afraid to say how many I did kill. If any one knows any better way I should like to hear from him.

My bees are Italians; some of the colonies that were robbed made two supers of honey before they were molested.

Hotchkiss, Colo. G. M. Ellington.

BEST WAY TO START ANEW AFTER WINTER LOSSES.

I wish to increase my apiary, having lost most of my bees last winter. Will it be cheaper to buy queens from the South for the first divisions, and raise queens for later dividing, and increase from those I have (9 stands), or buy bees in box hives (if I can) at $2.50 or $3 00 a stand, transfer, and divide them, raising queens myself?

Hyrum, Utah, Dec. 8. Edwin Ralph.

[I would recommend the latter plan. It would give you stronger colonies for the harvest, or you could divide as suggested for increase.—Ed.]

ANOTHER WAY OF USING FORMALDEHYDE; A SANITARY BOTTOM-BOARD.

During my work with formaldehyde as a cure for foul brood I have constructed a sanitary bottom-board which is so made as to receive the drug without disturbing the bees. With a diseased colony I proceed as follows: Place the sanitary board on the old stand, upon which I put a clean hive with frames and starters. Above this I place the old hive body, and then after smoking the bees and queen down I replace the old body on the old board. I then put on a honey-board and put the old hive on its old stand over the new body. In this way I can medicate the colony from the bottom-board without any more bother. The larvæ that live will be taken care of, and come out in time. The gas will readily penetrate to all parts of the hive, sterilizing the pollen and honey so that the food made from it for the larvæ will be healthful. E. A. Newell.

Massillon, Ohio.

THE A B C CHILD THAT GREW SO FAST.

Enclosed please find $1.00 for renewal of Gleanings. I feel I could not keep up with the times without it. I have been a subscriber since 1879 — known then as the "child that grew so fast."

Colburn, Wis. E. A. Morgan.

[About 25 years ago one of our subscribers wrote about a neighbor of his who was taken very suddenly with an acute attack of bee-fever. He got hold of every thing he could on the subject, questioned his neighbors, got some bees, and just went into the business "for all there was in it," as the expression goes. If I remember correctly, at his very first effort, before people would ordinarily be able to distinguish a queen from a drone, he made a big success, outstripping the veterans. This caused him to be styled through the journals as in the heading above. For some time we had reports from him every season, or oftener, and he was still running the business at high pressure. Not long ago I was wondering what had become of him, and behold here comes a letter.

But look here, old friend. How about the bee and honey business? Did you stop growing all at once, or are you "still at it"? That reminds me of something else that I am afraid our people are forgetting, especially when I am off in the woods in Michigan. Every subscriber to Gleanings, who has had it continuously for twenty years or more, is entitled to one year free. When you are subscribing, just mention this.—A. I. R.]

MY WAY TO DISPOSE OF SKUNKS.

Tie a light pole, 10 or 12 ft. long, to the trap chain, and you can carry it safely away from the buildings to dispose of. If you haven't a gun handy, dig a narrow hole 1½ or 2 ft. deep, like a fence-post hole. Let the skunk down into it and kill with a blow of the spade. James Birchard.

Tabor, Iowa, Oct. 8.

I am pleased to be able to report that we have formed a Jefferson County Bee keepers' Society, with the following officers: Pres., M. C. Harrington, Watertown; First Vice pres., A. A. French, Black River; Second Vice-president, Pearl Symonds, Rodman; Sec., Geo. B. Howe, Black River; Treas., D. R. Hardy, Watertown. All bee-keepers are invited to join. Dues, $1.00 per annum. Geo. B. Howe, Sec.

Black River, N. Y.

OUR HOMES, BY A. I. ROOT.

Then answered Peter and said unto him, Behold, we have forsaken all, and followed thee; what shall we have therefore?—MATT. 19. 27.

What shall we have as a reward or recompense for foregoing pleasures a Christian ought not to indulge in? This question often comes up, especially from those who contemplate bearing the cross of a Christian life, as to what we shall receive that will counterbalance the value or the pleasure of these worldly things given up. In our last Home paper I suggested that theater-going was not conducive to the highest state of spirituality. There has been considerable said, also, not only in regard to worldly amusements, playing cards, going to dances, etc., but giving up tobacco, signing the pledge, etc. Many of us are asking the question which seems to have been in Peter's mind as he reminded the Master that they had left all and followed him. The answer our Savior gives seems to average humanity rather extravagant (see Matt. 19: 28, 29; Mark 10 : 29, 30; Luke 18 : 29, 30), and yet I think that every one who has really left all — every thing that is even questionable — to follow faithfully the Lord Jesus Christ, will be able to testify at any time that the reply is not at all extravagant. When I published the letters from Bro. Whitcomb I felt sure they were going to bear fruit, and good fruit, too, and I wish to submit to you a sample of it. We will let Bro. Whitcomb introduce the matter:

Dear Bro Root: - The enclosed letter, coming to me this morning, relates an experience which I know will be of deep interest to you I do not approve of his plan of allowing his copies of GLEANINGS to accumulate unread until the spirit moves to action, as in this case, but I enclose the letter I am glad to bear testimony for Jesus to-day, and I feel that I have the witness of the Spirit within my heart this morning.

Friend, Neb., Feb. 1. E. WHITCOMB.

Now, the writer of the following, evidently, did not intend it for print; but I feel so sure, from the spirit of it, that the dear brother will be willing to give his testimony wherever it may do good, I take the liberty of giving it entire.

My dear Brother Whitcomb:—On account of certain events which transpired recently in this community, which had the effect of making me feel sad because of the church's attitude toward some of the many evils which surround it in the present day and age, and because of the meager fruits (spiritual) manifested on the part of many who profess to have been converted to God, and are now in his service, and while meditating and wondering if, when Christ shall make his second appearing, he would find faith on the earth, an impulse unaccounted for seized me to tear the wrapper from a copy of GLEANINGS many of which lie on my desk untouched since brought in by the mails, and, strange to say, by a peculiar coincidence I selected from at least eight journals so untouched the one in which your glorious conversion is reported. I am not sure, Bro. W., but I could have been heard to say, "Yes glory to God! there is still faith on the earth." And let me say right here that I regard this coincidence as providential. I read the report, and said to myself, "Praise God, his spirit is still operating on the hearts of the people, and his power is still sufficient to transform men from a life of sin and captivity unto a life of liberty and usefulness" What an uplift the reading of that report was to my soul! How I was made to rejoice that the gospel of Jesus Christ is as much to-day as it ever was the power of God unto salvation to all who believe. I was so elated on reading, and after having taken such a gloomy view of things, that I rushed into the house and read it to my wife, and we both rejoiced I have also had several of my friends who came into the store read it, and I noticed it caused on them, as it did on me, the tears of joy to course down their cheeks. So that the return of a soul to God is not only an occasion for joy on the part of the angels in heaven, but also for the saints on earth. Your letter has such a genuine spiritual ring to it that I have no hesitancy in accepting your profession that yours is a religion of the heart and not merely of the head.

I also rejoice in the stand you have taken with refference to the use of tobacco, and also the way you met the Devil's temptations that you could not run a newspaper and be a Christian. Oh, how subtile Satan is! Ever lean on God's infallible promises, and he will surely bring to pass the desire of your heart. You will, no doubt, wonder why I am taking such an interest in your conversion. Well in the first place it is because I am interested in the salvation of souls; and, second, because I claim you as a brother bee-keeper; and, furthermore, I can justly lay claim to a short personal friendship, besides a long acquaintance by reputation. You will, quite possibly not remember me; but we had the plesaure of meeting each other at a convention held in Buffalo six or seven years ago. Now, Bro. Whitcomb, pardon me for giving you just a few words of my experience. While I am in my 44th year, I have nevertheless actually lived, in the true sense, less than four years. At that time God touched my heart in a very similar way to that of your own case ; and, oh how thankful I have ever been that I yielded obedience to that call! I have truly enjoyed God's showers of blessing, but it has not been all sunshine. There has been some severe testing, of which I just wish to relate a little for your encouragement.

I also was a victim of the tobacco habit, and was, soon after my conversion, convinced by God that, to continue this habit, was not consistent with Christian living, and there and then resolved with God's help to forsake it. I asked him to help me, and by faith trusted in his power to do so; and he gave me the victory, not only over the temptation to yield, but also over the appetite But this was not all. You will notice by this letter-head that I am in the mercantile business, and, of course, sold tobacco and cigars. This also looked inconsistent, to sell that to others which I felt condemned in using myself. This caused a tremendous struggle. The Devil plainly told me, "You can not conduct your business successfully without handling tobacco. You will lose trade; people will call you a fool." But through earnest prayer for guidance and help I finally decided to obey my convictions, even though it drove me out of business. I obeyed, and am still in business at the old stand after a trial of over two years; and let me assure you that it is a matter of extreme satisfaction to me, when asked for tobacco or cigars, to be able to say, "We do not handle them."

And now let me encourage you to faithfulness, which I also wish for myself. We have both spent much of our life in sin; let us both, as God gives us grace, live the remainder of our days to his glory, that we may, when our journey on earth is ended, meet in the better land, with all the redeemed.

Bethesda, Ont., Jan. 29. D. W. HEISE.

Why, dear friends, the suggestion that a man will not be prospered in business who lets his religion shine out and through every part of it is utterly ridiculous. Look at the men all over our land who have been suddenly raised to positions of prominence by starting out for truth and honesty and fairness. The ones who are *afraid* to apply religion to business, who are *afraid* to tell the truth, no matter where it hits nor whom it hurts, always remain in the background; but the officer of the law who regards his oath of office as something sacred and holy is wanted *everywhere*. Is it going to injure the standing of President Roosevelt to come out boldly and declare he does not use tobacco, and never did use it? or is it going to raise him in the estimation of every man, woman, and child in the whole United States?

The idea that it will not do for an editor to let his religion get into his paper, or for a man in the mercantile business to give up the sale of tobacco and cigars, was illustrated most vividly by a story our good pastor told in his sermon last Sunday. I am well aware that I can not tell it as he did. If I could stand by you all I might do a little better; but I will do the best I can in telling it to you in print. When our pastor commenced the story he came out from behind the pulpit; and the good-natured comical look on his face as he commenced gave his hearers notice that something good was coming. You may imagine, if you please, that your old friend A. I. Root has left his place beside the stenographer, and is standing before you while he talks.

THE STORY OF THE BOY, THE DOG, AND THE RABBIT.

One bright morning, after a light fall of snow, a boy started out with his dog. Pretty soon the dog pricked up his ears, and started off on the freshly made track of a rabbit. The boy put after the dog as fast as he could. In due time the two were led into the woods; and, finding the rabbit had gone into a hole, both boy and dog proceeded to dig it out. They found they had a pretty big job on hand, but worked an hour or two before they gave it up, which they finally did because they were both too tired to work any longer, or perhaps it was dinner time. Before abandoning the work, however, the boy kicked in the dirt he and the dog had thrown out, and picked up some bright pieces of mineral that looked as if they might be ores of some kind. He put them in his pocket and carried them home. One evening when he was playing with his geological specimens his father, who sat near reading his paper, glanced over his spectacles to see what the boy was amusing himself with. After questioning the lad as to where and how he got them, the father hunted up an old cyclopedia and spent quite a little time in looking at specimens and reading the description. Next day he went to town and showed them to the principal of the high school. They made some further investigations, which resulted in calling the State geologist. With suitable help they made considerable excavations around where the rabbit had gone into the ground. Perhaps the boy thought that they, like himself, were thinking of nothing but getting that rabbit; but in a little time when men versed in minerals had looked over the locality the father sold his farm for *fifty times* the value he had always been placing on it. The money he received gave the father an opportunity of carrying out a good many projects he had in mind, but which he had been compelled to give up heretofore on account of poverty. Among these projects was not only the educating of himself in certain lines, but also the fond one of sending his boy to college, and giving him a chance to be of some value to the world.

My story is now ended so far as the father is concerned; but what about the boy and the dog? I suppose the *dog* was a good deal disappointed from the fact that, after all this ado and hard work, they did not get the rabbit. We need not be surprised at this, because a dog's intellect can not well go any further than rabbits. But how about the *boy?* Well, the story goes that *he* continued to weep, and would not be pacified, even though his father tried to persuade him that the rabbit was of no particular account compared with what he and the dog *did* find in digging. Need I suggest the moral? We, citizens of the United States, people whom God has permitted to live in this glorious twentieth century, are, too many of us, setting our aims and aspirations on something of no more account than the rabbit which the boy and the dog did not get. In our stupidity we continue to magnify the value of the rabbit while we ignore and neglect the great treasures that lie peeping out of the earth ready to be picked up if we will only recognize their value. Tobacco, strong drink, the dance-hall, cards, and *I* should say the theaters, may be represented by the rabbit. The ingots of ore that are kicked around as worthless, while we are scrambling for the rabbit — these ingots that are sometimes tramped into the dirt and mud out of sight, may be represented by truth, honesty, temerance, Christian character, communion with the great Father above, etc. These latter are things that will enable us to rise above our surroundings, to get an education, to hold positions of honor, to labor for the welfare and best interests of the world about us, and to receive finally, in the world to come, *life everlasting*. It is all right to go out with a dog to chase rabbits while we are young; but is it not true that too many of us do nothing of more importance than chase rabbits all the rest of our lives, like the story I told you a few months ago of the man who, with bent back and sad countenance, wasted all his time in raking up leaves, straws, and trash, even while an angel held just over his head a golden crown, proffering it as a free gift if he would look up and abandon his rickety old rake, and give it to the angel that held the shining crown? Bro. Whitcomb and Bro. Heise have told about letting go of these things that would drag us down and not up, and reaching forth for the golden crown that is within the grasp of each and every one. It used to be the fashion in revival times to talk about heaven and the life to come. Just now the world is learning that there is a heaven on earth for all who are willing to put away selfishness, and to receive it at the hands of the Master; for he says that for every thing that we give up we shall receive a hundred fold more in this present time; and, after life's toils are over, "eternal life." If we think we can not afford to give up selfishness and selfish appetites, we shall go through the world dragging everybody down to our own level, or lower still; but if we start out to serve the Master, even though we do not make very much headway, we shall not only be lifting ourselves up, but all humanity along with us. Which shall it be?

HIGH PRESSURE GARDENING

BY A. I. ROOT.

MY "ROASTED-CHESTNUT" POTATO.

Some time last spring friend J. B. Mason, of Mechanic Falls, Me., sent me a sample of potatoes that he said were extra nice for table use. As he took the trouble to prepay the express charges on something like half a peck, I supposed they must be, of course, in some way remarkable. His letter accompanying is not at hand; but he said he had been growing them some years on account of the extra quality, both for baking and steaming. He said if I boiled them they would be apt to "go all to pieces," so he preferred steaming. It was exactly as he said. The potato was very dry and floury, with a peculiar taste not unlike that of a roasted chestnut. The potato is not a great yielder; and as it was of a reddish blue, not only on the outside but on the inside also, it was not very attractive in appearance. Its only recommendation was quality. Now comes the disappointing part of it. When these potatoes were planted in Northern Michigan they were not only poor yielders, but the quality was just ordinary. On that soil it did not reproduce itself. Nothing remarkable about this, is there? To tell the truth, I do not know that I should have ever mentioned it at all were it not that it paved the way for the following:

About the same time, somebody else (his letter is at present up in Michigan) sent me samples of some seedlings of his own originating. One was a fine white potato; the other looked considerably like Mason's blue potato. By the way, I think friend Mason said his potato was a sport from the Blue Lapland that was grown quite extensively years ago. Well, this latter friend who sent me the two kinds of potatoes wrote me again before planting time, telling me to throw away the red ones, as he had since discovered they were all hollow and "no good." I accordingly told the boys to sort out the red potatoes and not plant them. There is a general prejudice against red potatoes, anyhow.

Before I go any further in my potato story, permit me to say that I have tested so many potatoes in times past, and found them to be but little if any better than ordinary, I have not had very much heart in the work of late years. Quite a number of the brethren have complained that I didn't even report. Well, a potato just now has got to have some very remarkable quality to compete successfully with the good potatoes we already have — Carman No. 3, for instance. After spending lots of time and money in testing the much-lauded new kinds, Carman No. 3 steadily comes out ahead. If you want quality and beauty of appearance, *Freeman* comes out steadily ahead. If you want an extra-early potato, somehow the old Early Ohio bobs up after a little, year after year. When it comes planting time purchasers keep calling for the *Early Ohio*, no matter how strongly seedsmen urge other kinds that are "ten days" or "two weeks" earlier — "better yielder," "better quality," etc. The potatoes that are sent me for trial have, many of them, proved to be very good; but when one thinks of the labor of introducing a new variety, and proving that it will thrive in all localities, he had better think twice before he puts much money in it. Let us now go back.

When I told the boys to sort out and throw away all the red potatoes, they must have skipped half a dozen or more; for every little while we would find, in digging, a red potato among the white ones. I could not think at first how they got there until I remembered what our friend said about the red potatoes being hollow. All together there was nearly a peck. Many of them were of peculiar shape, sharp at one end and round on the other — something like a pear shaped sweet potato. I thought, before throwing them away, I would test some just for the fun of it. When washed up in our spring they looked very nice. Pretty soon Mrs. Root began to scold. First she said those red potatoes were so hard she could scarcely get a knife into them to peel them. She said, furthermore, that every one I gave her, *little and big*, was hollow, and the hollow was black around the outside; so that, in order to get any potatoes for dinner, she had to pare them outside first and then dig into the flinty things to pare off the *inside* where it was dark colored around that hollow. I asked her why she did not throw them away without fussing so much. She replied, "The orders were to test them." She knew by experience that, in testing potatoes, she was expected to obey orders. We both laughed; but when it was dinner time we had one of our "happy surprises." The quality was far ahead of any thing I had ever tasted in the potato line; and when tested by baking they were *almost* equal to a roasted chestnut. And, by the way, did it ever occur to you that the best table potatoes are the ones that are crisp, hard, and brittle when you attempt to cut or pare them? I remember we had, some years ago, some Hubbard squashes that were so heavy and rock-like that we had to pare them with a hatchet or draw-knife. Then when we wanted to cut them up they had to be chopped in pieces with a hatchet. They seemed almost like oak knots. And these Hubbard squashes were superior to any thing we ever got hold of before or since. They were not only dry and mealy, but, under the influence of the heat, every piece of squash opened out like popcorn, and had a rich nutty sweetness. I have sometimes thought we do not have any more Hubbard squashes such as Gregory gave the world when I was a boy. I think we tested these potatoes three times for eating—twice baked and once boiled—and there is about half a peck of them left. The originator who grew them from the seed told me he had given them up because they were all hollow. Why didn't he say something about the *quality?* or was the quality on his ground nothing remarkable? By the way, I might as well own up that my Michigan grown potatoes for the last season were mostly poor in quality for table use, probably owing to the blight; but these red potatoes, right in the middle of the field among the rest, showed this wonderful superiority.

I have now got to the climax of my story. Is there any man, woman, or child, who reads GLEANINGS, who can breed out the *hollowness* of my roasted chestnut potato? I presume that experts in this line of work would tell us we must make the potato bear some seed-balls, then we may get from these seed balls a potato of the same quality without being hollow. A good many of the potatoes I grew up in Michigan produced immense seed-balls two years ago. Last season I did not notice any—perhaps owing to the blight. I do not know exactly what to do with my half peck. I want some of our expert potato men to give me their opinion in regard to the probability that these potatoes might be grown without hollows, on some different soil. Perhaps we should then lose the quality. One season the New Craig potato showed many hollow ones. As an experiment we planted these hollow potatoes, but the crop was entirely sound.

On page 199, 1902, I gave an article from the *Rural New-Yorker*, entitled "An Elusive Radish." After several years of experimenting, the writer tells us how he succeeded in getting exactly the radish he wanted; but just as he was shouting "*Eureka!*" over his success his radish slipped out of his grasp. Will this be likely to be the case with my potato? I shall continue to grow them for the quality—that is, if the quality keeps up in different soils, even if they *are* hollow. But if we can get rid of the hollow, I think some of our prominent seedsmen would pay a large price for the potato.

Mrs. Root objects to the potato because it is too hard to pare; but we can get around this objection by baking them, or boiling them with the "jackets" on. But who wants a potato, baked or boiled, with a dirty black hollow inside of every one of them?

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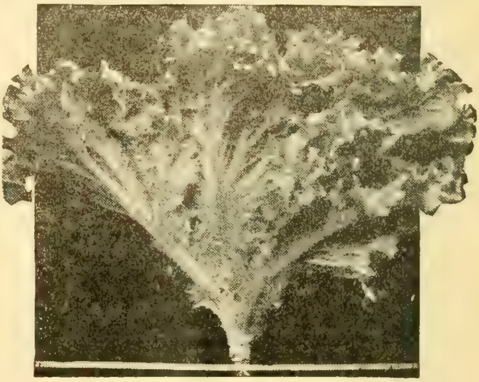

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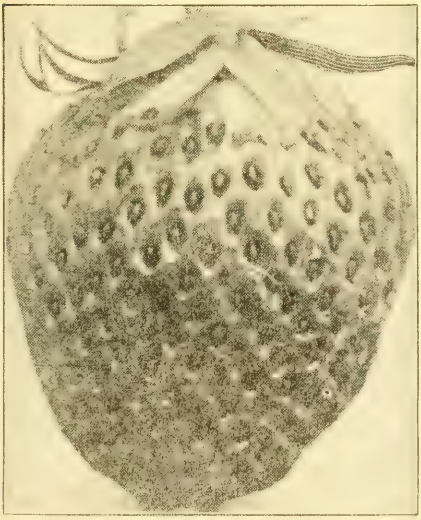

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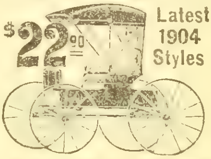

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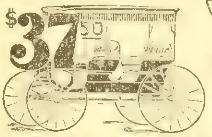

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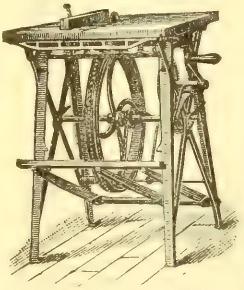

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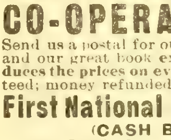

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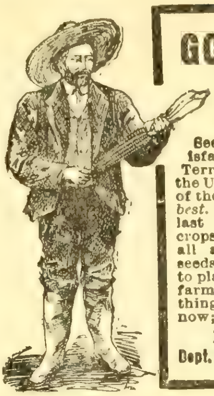

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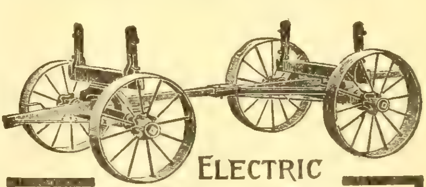

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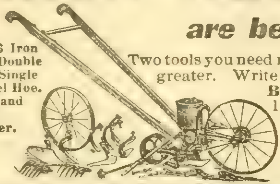

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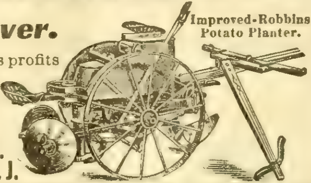

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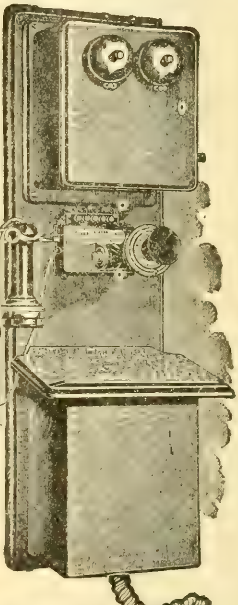

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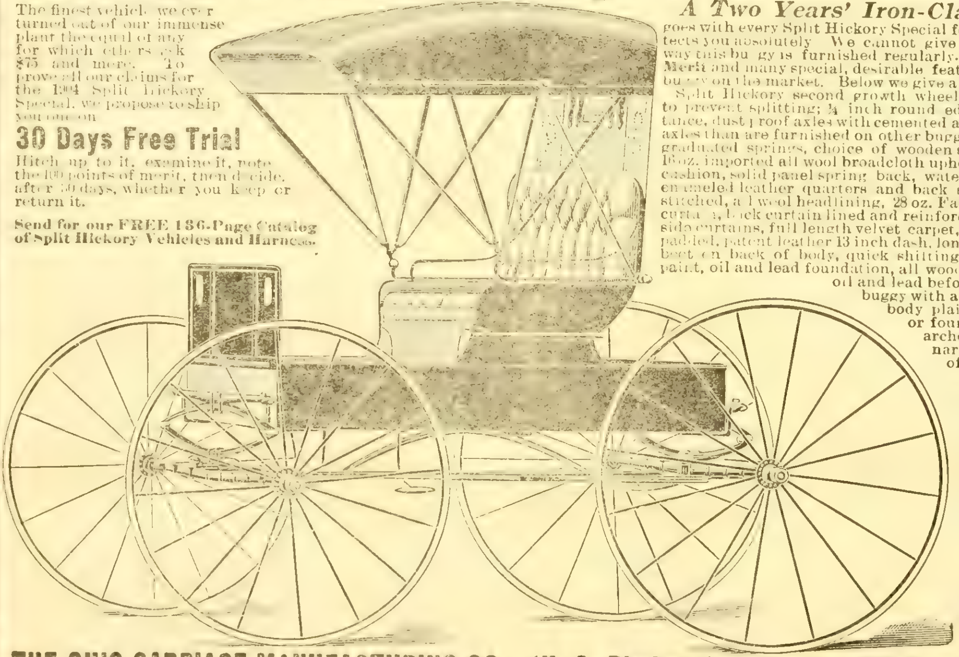

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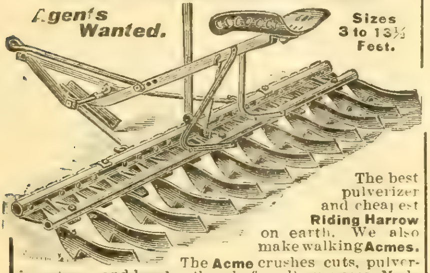

ACME Pulverizing HARROW
Clod Crusher and Leveler

Agents Wanted. Sizes 3 to 13½ Feet.

The best pulverizer and cheapest **Riding Harrow** on earth. We also make walking **Acmes.** The **Acme** crushes cuts, pulverizes, turns and levels all soils for all purposes. Made of cast steel and wrought iron—**Indestructible.**

Sent on Trial To be returned at my expense if not satisfactory. Catalog and booklet **"An Ideal Harrow"** by Henry Stewart, mailed free. I deliver f.o b. New York, Chicago, Columbus, Louisville, Kansas City, Minneapolis, San Francisco.

DUANE H. NASH, Sole Mfr., Millington, N. J.

Branch Houses: 110 Washington St., Chicago. 240-244 7th Ave. South, Minneapolis. 1316 W. 8th Street, Kansas City. 215 E. Jefferson St., Louisville Ky. Cor. Water and W. Gay Sts., Columbus, O.

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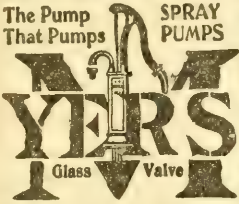

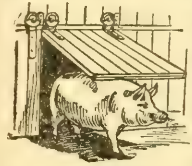

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The Pump That Pumps
SPRAY PUMPS
Double-acting, Lift, Tank and Spray PUMPS
Store Ladders, Etc.
HAY TOOLS of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

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SCRAWNY CHICKS

lack sufficient nourishment. Fatten them—make them healthy—feed them **Mrs. Pinkerton's Chick Food.** It prevents bowel trouble. It's all food—easily digested. Write for catalog of prize birds at St. Louis and Chicago 1903 Shows. Gives prices and valuable information.

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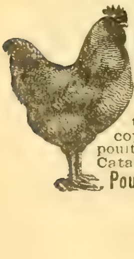

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14th Year. 32 TO 64 PAGES.
The 20th Century Poultry Magazine

Beautifully illustrated. 50c yr., shows readers how to succeed with Poultry. Special Introductory Offer. 3 years 60 cts; 1 year 25 cts; 4 months trial 10cts. Stamps accepted. Sample copy free. 148 page illustrated practical poultry book free to yearly subscribers. Catalogue of poultry publications free.

Poultry Success Co., Dept. Springfield, O.

Greider's Fine Catalog
of Prize-Winning Poultry

for 1904. This book is printed in different colors. Contains a Fine Chromo of life-like fowls suitable for framing. It illustrates and describes 60 varieties of poultry, ducks, geese, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer**; how to make hens lay; poultry supplies and such information as is of much use to all who keep chickens. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.

POULTRY PAYS

when the hens lay. Keep them laying. For hatching and brooding use the best reasonable priced Incubators and Brooders — built upon honor, sold upon guarantee,

THE ORMAS

Send for Free Catalog

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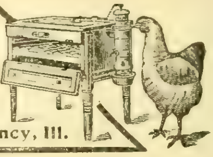

$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

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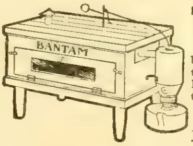

The Bantam

beats 'em all. One customer writes he obtained 51 chicks from 50 eggs. The Bantam hatches every fertile egg every time. Catalogue proves it—sent free.

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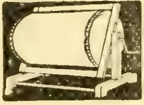
Box, 64, Springfield, O.



This Lightning Lice Killing Machine

kills all lice and mites. No injury to birds or feathers. Handles any fowl, smallest chick to largest gobbler. Made in three sizes. Pays for itself first season. Also *Lightning Lice Killing Powder, Poultry Bits, Lice Murder, etc.* We secure special low express rates. Catalog mailed free. Write for it.

CHARLES SCHILD, Ionia, Mich.

A THOUSAND DOLLAR EGG

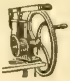
—a touching story of devotion telling how Mandy paid the mortgage and saved the farm. Tells how to make money from poultry. Also Egg record and Calendar for 1904. Mailed free. **Geo. H. Lee Co., Omaha, Neb.**

GET MORE EGGS

Your Hens Will Lay twice as well if you use a Mann's Latest Model Bone Cutter

Ten days free trial. No money in advance. Catalogue free.

F. W. Mann & Co., Box 37 Milford, Mass.



THE CROWN Bone Cutter for cutting *green bones.* For the poultryman. Best in the world. *Lowest in price.* Send for circular and testimonials. **Wilson Bros., EASTON, PA.**

PROFITABLE "PEEPERS"

Welcome sounds—the first faint "peeps" from cracking shells—heard coming from the evenly heated egg chamber of the

Sure Hatch Incubator

Those sounds mean money profit for the owner. A Sure Hatch starts chicks in life with strong lungs, solid bodies and good constitutions. Our free catalogue C 10 tells how. Write now.

Sure Hatch Incubator Co., Clay Center, Neb., or Indianapolis, Ind.

Genuine CYPHERS Patented INCUBATORS ARE GUARANTEED

To hatch a larger percentage of fertile eggs,
To produce larger and more vigorous chicks,
To operate with less oil and expense,
To require no supplied moisture,
To be self-ventilating,
To have a more sensitive, accurate and durable regulator,
To maintain a more even temperature,
To be more strictly automatic in action and
To give better results in **your hands** than any other make or style incubator in the world.

Seven years test has proved our claims. We back above guarantee by every dollar we possess. If the Cyphers does not do satisfactory work in your hands, you get your money back. Endorsed and adopted by 36 Government Experiment Stations and used by a large majority of the leading poultry men. Catalog for 1904 free if you name this paper. Address nearest office.

STRICTLY AUTOMATIC THROUGHOUT

Cyphers Incubator Co., Buffalo, Chicago, New York, Boston.

CHICKS THAT LIVE

get strong and healthy—gain steadily in weight, are chicks hatched in Reliable Incubators.

The Reliable

provides automatically a constant current of odorless, warm air at a uniform temperature—chicks pip, hatch and thrive under its nature-like conditions. Send 10 cents and get our 20th annual catalog—full of poultry information.

Reliable Incubator and Brooder Co., Box B-49, Quincy, Ill.

FEATHERS VENTILATE BEST

The hen supplies air and moisture to eggs thro her feathers. **Feather Incubator** walls are made of feathers—that's why it's an ideal hatcher. Free catalogue tells all about this remarkable machine. Write at once to

Zimmer Incubator Co.
Dept. 12, Ft. Wayne, Ind.

382 FIRST PRIZES
AWARDED PRAIRIE STATE INCUBATORS AND BROODERS

The United States Government continues to use them exclusively; also the largest poultry and duck breeders. Our catalog will interest you. Send for one.

Prairie State Incubator Co.
Homer City, Pa.

IT'S FUN

to get high per cent hatches.

GEM INCUBATORS

Wake every germ and hatch profit-fetching chicks that live. Learn all about em in free catalog. Write now.

The Gem Incubator Co.
Box 58 Dayton, O.

Counting Chicks Before Hatching

is not safe unless you have an

IOWA ROUND INCUBATOR

R. C. Bauerminster, Norwood, Minn., got 493 chicks from 503 eggs. He followed directions, the machine did the work, because it was built on right principles and by good workmen. The **IOWA** has fiber-board case, does not shrink, swell, warp or crack. Regulation and ventilation perfect. Our free book gives more testimonials and full particulars. Everything about incubation free.

IOWA INCUBATOR COMPANY, BOX 197, DES MOINES, IOWA

EVERY EGG GETS HEAT

at same temperature. No cold draughts to kill in this hatcher. Chicks hatch lively and strong from a

GREAT SCOTT INCUBATOR

Can't break our regulator—it's beneath the top. Needs little attention. New free catalog tells how to make eggs and chickens bring money. Write now.

Scott Incubator Co., Box 94 Indianapolis, Ind.

All Business

No hazard, no experimenting. You hatch the most and brood the best with

The Successful

Both incubator and brooder have proven their way. Prompt shipment of Eastern orders from our Buffalo house Incubator Catalog free, with Poultry Catalog 10 cts.

Des Moines Incb. Co., Dept. 503, Des Moines, Ia.

30 DAYS FREE

Why buy a "pig in a poke" when you can get the **ROYAL INCUBATOR on 30 Days Free Trial.** Absolutely self regulating. Try it and keep it only if you like it. Send for catalog and free trial plan. With poultry paper one year ten cents.

Royal Incb. Co., Dep. 503, Des Moines, Ia.

YOU'RE LOOKING

for just such a machine as Miller's new

Ideal Incubator,

the perfect hatcher, sent on **30 days' trial.** Absolutely automatic. Test it yourself. Big poultry and poultry supply book **free.**

J. W. Miller Co., Box 48, Freeport, Ill.

JOS. NYSEWANDER, DES MOINES, IOWA.

--Root's Goods at Root's Factory Prices--

BEEKEEPERS SUPPLIES

OUR NEW BUILDING,

just completed, and built especially for our large and increasing supply trade, is filled with the largest stock of supplies ever carried in the West.

Eighteen years in the supply business, with last year by far the largest in our history, proves we give satisfaction. We can satisfy you. Our goods are unexcelled, and our prices are right. Remember there are discounts on orders received now. We are centrally located, have every convenience for handling business with dispatch, and our shipping facilities are the best. ✤ ✤ ✤

Write to-day for our large illustrated FREE catalog. Address

Jos. Nysewander, 565-567 W 7th St Des Moines, Ia.

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Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.

DON'T WAIT any LONGER to Buy. **BEE SUPPLIES** BIG DISCOUNTS for Orders Now.

LEWIS' GOODS AT FACTORY PRICES.

Write to us to-day and say what you want and get our prices. New Catalog of 84 pages. It is free. We also handle

HOOSIER INCUBATORS AND BROODERS.

C. M. Scott & Company,
1004 E. Wash Street, INDIANAPOLIS, IND.

The Best Bee-goods in the World

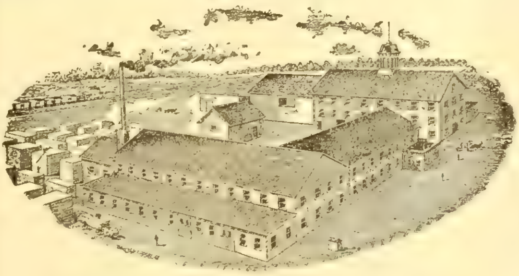
are no better than those we make, and the chances are that they are not so good. If you buy of us

You will not be Disappointed. We are undersold by no one.

Send for new catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cts. a year; especially for beginners.

The W. T. Falconer Man'f'g Co.,
Jamestown, N. Y.

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices.
Order of him and save the freight.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

2 per cent Discount during February.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
Chas. A. Meyers, Leipsic, Ohio.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Second-hand L. 10 frame hives.
S. C. JONES, Alplaus, N. Y.

WANTED.—To buy apiary, ready cash.
FRANK KRUMBOLTZ, Batavia, Ia.

WHAT have you to exchange for a one horse sweep power? GEO. A. OHMERT, Rockdale, Ia.

WANTED—.To exchange 8-frame hives, extractor, and uncapping can, for honey.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange new bee supplies for second-hand typewriter in good condition.
D. W. SWITZER, Roebuck, S. C.

WANTED —To exchange sweet-clover seed for Italian queens or bee-supplies.
THE GOULD FRUIT FARM, Crawford, Miss.

WANTED.—A Barnes machine with cutterheads, to cut from ⅛ inch to 1½ in.; two 12-in. saws, 1 rip, 1 cut-off. G. C. CARTER, Freshwater, Va.

WANTED.—To buy for cash, good bees in 10 frame Root hives in good condition, in Wilson County or adjoining. State best price with full particulars.
UDO TOEPPERWEIN, 438 West Houston St.,
San Antonio, Tex.

Situations Wanted.

WANTED.—A position with an experienced beekeeper by a young man of good habits.
J. L ZENNER Gansevoort, N. Y.

WANTED.—Steady position by young man, 21, in apiary. Will also do other work. Want to learn the bee business. Have had some experience. State wages you can pay. Correspondence solicited.
F. L. RIGGS, 7 Spring St, Nashua, N. H.

Help Wanted.

WANTED.—Assistant apiarist. State qualifications and wages. W. HICKOX, Berthoud, Colo.

WANTED —An experienced man to work with bees.
CHEEK & WALLINGER, Las Animas, Colo.

WANTED —A single man who understands beekeeping, gardening, and raising poultry.
E B POOLE, Clinton, Hinds Co., Miss.

WANTED —A man who is able to take full charge of an apiary, and manage it successfully.
JAMES MCNEIL, Hudson, N. Y.

WANTED.—A competent bee-man Must be sober and industrious. I will pay good wages for such a man. J. F. AITKEN, Reno, Nevada.

WANTED.—Young man, 17 to 20, to learn bee-keeping; good chance for the future. All the year.
I. J STRINGHAM, 105 Park Place, New York.

WANTED —A man with family and experience, to take charge of a fruit-farm; must understand spraying, and for fruit in general.
JAMES WEST, Montpelier, Ind.

WANTED.—An elderly man, or man and wife, to care for place; must know something about gardening. Good home for right party. Temperate German or Swede preferred. C. A. HULTQUIST,
Box 103, Brookhaven, Miss.

WHO WANTS to get my 30 years' experience with bees in 7 months? I prefer a farm-raised hand, and will want him to work on the farm when there is no bee-work Must be familiar with bees. Also 220 colonies to let on shares; ½ for box honey. Give experience, and wages wanted
W. L. COGGSHALL, Groton, N. Y.

Addresses Wanted.

WANTED.—Addresses of bee-keepers who use chaff hives. GEO E. HILTON, Fremont, Mich.

WANTED.—Addresses of parties interested in poultry supplies. GRIGGS BROS.
523 Monroe St., Toledo, O.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—To furnish you with groceries at reduced prices. Send for our free catalog
VICKERY BROS, Evansville, Ind.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1 00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE —A limited amount of ginseng sets.
C. G. MARSH, Kirkwood, Broome Co., N. Y.

FOR SALE.—75 colonies of bees packed in chaff on summer stands; also 200 lbs of comb honey.
Route 3. H. WILBER, Morenci, Mich.

FOR SALE.—Fifty bee hives, painted, good as new, Langstroth frame, Simplicity hive. Will sell reasonably. Address W. D. BYRNE, Station E, Toledo, O.

FOR SALE —8-frame 1½-story hives made of Michigan white pine. Root's frames inside. Five, $5 00; 10, $9 00. Nailed and painted, ready for bees, $1.50. Sections until April 1st at last year's prices. Send for list. W. D. SOPER, R. F. D. No. 3, Jackson, Mich.

FOR SALE.—Apiarian outfit of 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00 and accessories at one-half list price; combs 20c a square foot. X Y Z, GLEANINGS.

FOR SALE.—A splendid chicken and bee ranch—24 acres, 5-room house with kitchen, plastered and newly painted, never-failing water, barn wind-mill, and good out-buildings, fine black soil (part suitable for alfalfa), good orchard with a variety of fruit a fine location. Price $2000. Farm machinery, stock and household furniture go with place. One mile from Escondido. A bargain for some one. Address
P. O. Box 172, Escondido, San Diego Co., Cal.

FOR SALE.—An apiary and farm, consisting of 120 acres good grazing land, and only fifteen minutes' walk from the city of Cardenas, and on the public road; having on said place 350 hives (American system), all necessary supplies to handle these good house on grounds, numerous fruit trees, plenty of shade for bees, thirty odd head of cattle raised on the place, among these six fine American milch cows (Holstein stock) selling nice little amount of milk daily, good-riding saddle-horse, ox wagon with fine yoke oxen in fine condition, two good water wells, large pineapple-grove now producing, and with capacity to plant, if required, 60 000 henequen plants. Sell for cash, or on time with satisfactory guarantee. Address
AMERICAN BEE HIVE, P. O. Box 44, Cardenas, Cuba.

Walter S. Pouder. Established 1889.

Bee-keepers' Supplies.

Distributor of Root's Goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Co., and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee Smokers, Bee-veils, Pouder Honey-jars,

.........and, in fact, everything used by Bee-keepers........

Headquarters in the West for the Danzenbaker Hive which is so rapidly gaining in popularity among our most successful comb-honey producers. Investigate its merits.

No order too small, and none too large. "Satisfaction guaranteed" goes with every shipment. A pleased customer is the best advertisement that my business has ever had. Remember that it is always a pleasure to respond promptly to any communication pertaining to the bee or honey industry.

Beeswax Wanted.--I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package.

Take Notice.--Finest Comb and Extracted Honey on hand at all times. I handle several carloads during a season, and if your local demand exceeds your supply I can furnish you promptly, and at prices that will justify you in handling it. If interested write for my special price list of honey.

My Illustrated Catalog is mailed free to every applicant. Address your communications to

WALTER S. POUDER,

513-515 Massachusetts Ave., - INDIANAPOLIS, IND.

SPECIAL NOTICE

Special Notices
By Our Business Manager

FEBRUARY DISCOUNT 2 PER CENT.

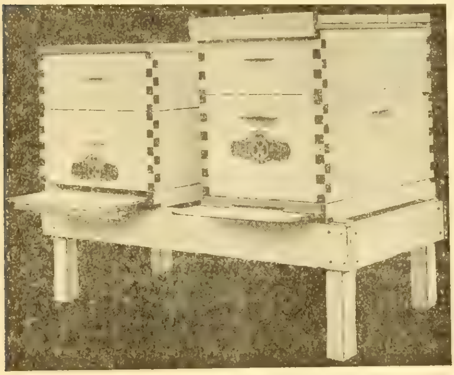
The discount for cash orders this month is two per cent. After this month, no discount.

A CORRECTION.

On page 110 of our previous issue, Mr. Emil J. Baxter is made to say that he had 64 *pounds* of honey as a crop for last season. It should have been that many *barrels*.

DUAL HIVE-STANDS.

In the first few thousand catalogs which we have sent out we showed a hive-stand with two boards on top projecting at each end, and with V-shaped corners. We found difficulty in getting material for such corners, and are making a hive-stand with square oak corners and no boards on top, same as that illustrated herewith. If you receive on your order a stand different from the one first shown in catalog, do not conclude that part of it has been omitted.



TOOLS FOR QUEEN BREEDERS.

Wood cell-cup, with point for attaching to bar, 50c per 100; $4.00 per 1000.

Same, waxed ready for use, 75c per 100; $6.00 per 1000.

Titoff wire nursery-cages, 15c each; $1.35 for 10; $12 50 per 100.

Frame for holding 20 cages, including cages, $3.00.

Cell stick, each 10c $1 00 per dozen

Transferring-needle, double ended and nickel-plated, 15c.

Jelly-spoon, nickel-plated, 15c each.

A complete amateur set, consisting of 3 cell-bars with 50 waxed cell cups, 1 frame of 20 nursery-cages, 1 transferring-needle, 1 jelly-spoon, 1 pamphlet of instructions, $1 50.

We can supply, also, fine-pointed lace-scissors with extra large bows, for clumsy fingers, at 35 cents each.

Convention Notices.

The Northern Michigan bee-keepers will hold their annual convention March 30 31, in Montague Hall, No. 127 Front St., Traverse City, Mich. We expect a large number of bee-keepers to attend. See editorial in the *Bee-keepers' Review* for December. Read that, and then come to the convention and bring your neighbor bee-keepers. A. I. Root will be present, nothing preventing. G. H. KIRKPATRICK, Pres.

Rapid City, Michigan.

The Southwestern Texas Bee-keepers' Association will meet at the courthouse, Beeville, Texas, March 10th and 11th, 1904 Free dinners on the grounds each day, and all bee-keepers are invited. Don't forget the time. E. J. ATCHLEY, Pres.

Send Us Your Name and Address
for our catalog of Plants and 32 quart crate and quart baskets. Special prices for February and March.
Address **H. H. AULTFATHER, Minerva, Ohio.**

Be Up-to-Date.
Use neatly printed stationery. Envelopes, letter heads, note heads, bill heads or statements. 250 of either, $1.00; 1000, by express, $2.00. Tell your wants and we will quote you prices. Samples free.
YOUNG BROTHERS, Printers, Girard, Pa.

ANY ONE wishing to loan or invest money in Cuba on good security, and large interest, write
JOSEPH CLARK, Caballos, Cuba.

WANTED. — Bees for unimproved Catche bottom land; not too low; 80 acres. Clay Co., Ark
G C, 296, Farina, Ill.

WANTED.—A competent man to help me in a growing bee business. Apiaries not large, but I want good management.
HARRY LATHROP, Monroe, Wis.

WANTED.—Bees Who can furnish cheapest? Colonies or by the pound, for one 2½ h. p. engine, good as new, $65 00. G. ROUTZAHN, Biglerville, Pa.

WANTED —Situation in the West by the year as assistant apiarist, by an experienced young man—23, healthy. Reference given and required. State wages paid. W. A. DUNLAP, Dunlap, Iredell Co., N. C.

WANTED.— A position as assistant apiarist, by a young man have had three years' experience; can furnish reference. State wages.
P. RASMUSSEN, Box 88, Bellaire, Mich.

WANTED.—To exchange Columbia graphophone, silver horn, both recorder and reproducer, fine carrying case; 12 records, for 120 lbs. of fine extracted clover honey. W. H. KERR, Crawfordsville, Ind.

WANTED.—A partner with $5000 in bees and cash. Unlimited range in best country on earth. Interesting proposition to right party. Address
Floresville, Tex., Call Box 82.

FOR SALE.—Melilotus seed, $2.50 per bushel 2 oz. pkg., 10c. W. P. SMITH, Penn, Lowndes Co., Miss.

FOR SALE.—White Leghorn cockerels, pullets, and eggs, at $1.50. Best laying strain. New York bank for reference. P. HOSTETLER, E. Lynne, Mo.

FOR SALE.—Redwood bee-hive bodies for 10 Langstroth frames, 30c each; also Hoffman frames.
H. VOGELER, 210 Davis St, San Francisco, Cal.

FOR SALE —80 colonies of bees in Heddon hives, wired frames. Fixtures at reasonable price. $4.00 per colony. J. J. OWENS, Box 242, Waterloo, Iowa.

FOR SALE.—Fine farm in Central Michigan, 120 acres best of land, first-class buildings, fenced, good neighborhood. For particulars address
P. MCGRATH, R. F. D. No. 3, Shepherd, Mich.

FOR SALE.—My apiary outfit consisting of Dovetailed-hive bodies filled with frames of comb; honey and wax extractors, comb-buckets, and other fixtures. Will fill orders as received until sold. Saw-mill well located almost new. Also good farm well located. All for sale cheap. B. J. CROSS, Auburn, Alabama.

FOR SALE.—Three apiaries containing about 800 colonies Italian bees in 10-frame hives. Apiaries 2½ miles apart, good roads, famous logwood locality, seasonable district. Each apiary fitted with 4-frame extractor, honey-knives, uncapping-cans, subsiders, solar extractors, etc To an energetic man this country offers vast possibilities DAVID MARCHALLECK,
Morant Bay, Jamaica, B. W. I.

1884 1904

Twenty Years

Of experience in the manufacture of Hives and Supplies, and a little longer in Queen-rearing, with good facilities, will enable us to fill your orders with satisfaction and promptness. :: Let us send you our 64-page Catalog. . . :

J. M. JENKINS,

WETUMPKA, = = ALABAMA.

2 Per Cent Discount

During the Month of February

Send for our 1904 catalogue and price list. Our hives are perfect workmanship and material.

Take Advantage of Early Discounts

and send your orders in NOW. By so doing you SAVE MONEY AND SECURE PROMPT SHIPMENTS

Page & Lyon Mfg. Co.

New London, Wisconsin, U. S. A.

Dittmer's Foundation

RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the **Cleanest and Purest,** and in all respects the best and most desirable.
Send for samples. Working wax into foundation, for cash, a specialty.
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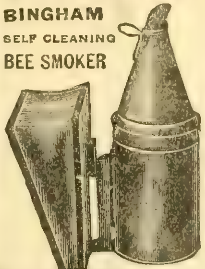
GUS. DITTMER, Augusta, Wisconsin

ORIGINAL PATENT BINGHAM SMOKERS.



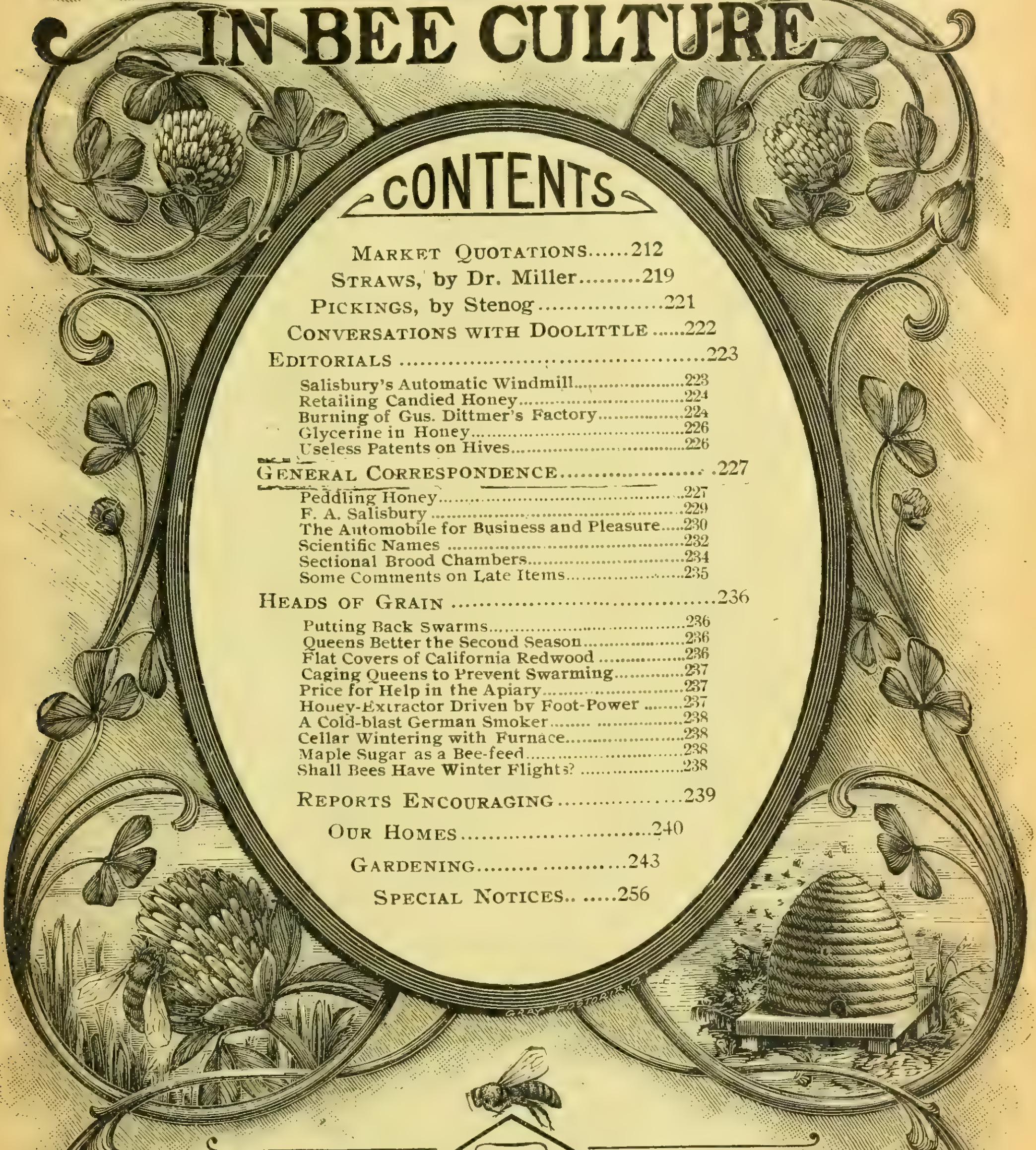
4-inch heavy tin Smoke Engine, 381 holes in steel fire-grate, postpaid	$1 50
3½-inch Doctor, 286 holes in grate	1 10
3-inch Conqueror, 220 holes in grate	1 00
2½-inch Large, 170 holes in grate	90
2-inch Wonder, 110 holes in grate	65
4-inch heavy Copper, 381 holes in grate	2 00

Twenty-five years the only patents granted, most improved, standard, and best in the world. *Never a complaint.* All have shields, bent cup, and coil-wire handles. Never go out, or throw sparks or soot. Bingham Smokers are not like other smokers. I would like to show you the many letters I have, but will summarize them below: " Don't see how they could be improved;" "Best I ever used;" "Perfect satisfaction;" "Perfection itself." The latest unadvertised patent, dated 1903, sent by the inventor on receipt of 10c above regular prices of the 3 larger sizes of smokers.

T. F. BINGHAM, FARWELL, MICH.

Volume XXXII. MARCH 1, 1904. Number 5

GLEANINGS IN BEE CULTURE



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Let me book your order for QUEENS (see catalog, page 29) as stock for early orders is limited. NUCLEI ready to supply, beginning June.

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Warehouse, Freeman and Central Aves.

CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Milwaukee.—There is not much change to note in the honey market here since our last report; the sales drag, and stocks do not reduce as fast as may be desired, yet we have made some sales; but it seems to be necessary to reduce values somewhat; but we are expecting, as cold subsides and warmer conditions prevail, a more active demand. We now quote fancy sections, 12@14; A No. 1, 11@13; off qualities comb, nominal; extracted in barrels, kegs, cans, and pails, 6½@8. Beeswax, 30.

A. V. Bishop & Co.,
Feb. 18. Milwaukee, Wis.

Buffalo.—The honey trade is very dull. It is extremely cold weather, and trade in general in dull; so if the weather warms up a little there may be some demand for honey. Fancy white comb, 13@14; A No. 1, white comb, 12@13; No. 1, white comb, 11½@12½; No. 2, white comb, 11@11½; No. 3, white comb, 10@11; No. 1, dark comb, 10@11; No 2, dark comb, 9@10; white extracted, 6½@7; dark extracted, 5½@6. Beeswax, 28 @32.

W. C. Townsend,
Feb. 25. Buffalo, N. Y.

Kansas City.—There is no change in the price of comb honey. The supply is large. The receipts of extracted are large, and demand very light. The market price on fancy and No. 1, comb, 24 section cases, $2.25; No. 2 stock, 24-section cases, $2; extracted, white, per lb., 6@6½; extracted, amber, 5½@6. Beeswax, 30

C. C. Clemons & Co.,
Feb. 24. Kansas City, Mo.

Cincinnati.—The honey market at present is dull, and lower prices would not induce sales, which, no doubt, is due to the continued cold. We hope to submit a better report when the weather moderates We offer amber extracted honey, in barrels, at 5½@6½, according to quality. White clover, 6½@8½. Fancy comb, 14@15, in a small way. Beeswax is wanted at 30.

The Fred W. Muth Co.,
Feb. 16. 51 Walnut St., Cincinnati, Ohio.

Denver.—Demand for comb honey of good quality has been improving lately. Strictly No 1 white brings $2.75 per case; ordinary No. 1 stock, $2.50 per case; No 2, $2 25@2.50. Practically no sale for partly candied comb honey. White extracted, 7¼@7¾ per pound. Beeswax wanted at 26@30, according to color and cleanliness.

The Colo. Honey Producers' Ass'n.
Feb. 20. 1440 Market St., Denver, Colo.

Boston.—There is a little better demand in comb honey which is the beginning of the spring demand. The stocks in hand are ample to take care of all possible demands. We quote as follows: Fancy white, 16; A No. 1, 15½; No 1, 15@15½. Extracted fancy, white, 8; light amber, 6½@7, according to quality.

Blake, Scott & Lee,
Feb. 19. Boston, Mass.

St Louis.—Comb honey is quoted as follows to-day: A No 1, 12@12½; No. 1, 10@11; fancy, 13. No demand for other grades. Extracted honey, 6@6½ in cans; 5 @5½ in barrels.

R. Hartmann & Co.,
Feb. 19. St. Louis, Mo.

Schenectady.—The honey market continues very dull, with large stock on hand for this time of the year. We look for some improvement now that Lent has arrived. Prices remain nominal.

Chas. McCulloch,
Feb. 22. Schenectady, N. Y.

New York.—Demand for comb honey has slackened off considerably; and while there is some call for white, receipts are heavier than the demand, and in quantity lots quotation prices are shaded more or less. We quote fancy white at 13@14c; No. 1 at 12, and amber at 11. There is no more demand for dark honey whatsoever, and would not encourage shipment of this grade. Extracted honey is quiet at unchanged prices. Beeswax in good demand at from 28 @30c.

Hildreth & Segelken,
Feb. 27. 265-267 Greenwich St., New York.

Detroit.—Demand for honey is poor. Many groceries put in stock in the fall enough for the entire winter, and there seems to be little chance of the beekeeper disposing of any amount now. Prices about as follows: Fancy white, 14@15; No. 1, 13@14. Darker grades, 11@12. Beeswax, 28@30.

M. H. Hunt & Son,
Feb. 22. Detroit, Mich.

San Francisco.—New comb, per lb., white, 10@12; amber, 8@10; extracted, water-white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Beeswax, 26@28.

Ernest B. Schaeffle,
Feb. 23. Murphys, Cal.

For Sale.—I have a few more cases of comb honey (mostly buckwheat), which I will offer at a reduced price to close out.

N. L Stevens, R. D. 18, Moravia, N. Y.

For Sale.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.

G. W. Wilson, R. R. No. 1, Viola, Wis.

For Sale.—Thirty barrels choice extracted white-clover honey. Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps.

Emil J. Baxter,
Nauvoo, Hancock Co., Ill.

For Sale.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

For Sale.—Fancy basswood and white-clover honey; 60-lb. cans, 8c; 2 cans or more, 7½c; bbls., 7½c.

E. R. Pahl & Co., 294 Broadway, Milwaukee, Wis.

For Sale.—Fine extracted honey for table use, in 60-lb. cans. Price for white, single can, 7½c; two or more, 7c. Amber, one cent less.

C. H. Stordock, Durand, Ills.

Wanted.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us.

Evans & Turner,
Columbus, Ohio.

Wanted.—Beeswax; highest market price paid. Write for price list.

Bach, Becker & Co., Chicago, Ill.

Wanted—Comb and extracted honey. State price, kind, and quantity.

R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

Wanted.—Extracted honey, white clover, basswood, and alfalfa. Send sample at once, stating quantity you have how put up, and lowest price.

The A. I. Root Co., Medina, Ohio.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

Hildreth & Segelken,
265-267 Greenwich St., New York.

Wanted.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.

Thos. C. Stanley & Son,
Fairfield, Ill., or Manzanola, Colo.

WANTED—Beeswax. We are paying 28c cash or 30 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price. THE A. I. ROOT COMPANY, Medina, O.

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Honey, Beeswax, Maple Sugar and Syrup, etc.
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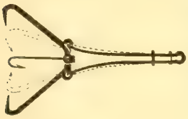

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WANTED.—Your name and address, for circular of bee-veils, veil materials, bee-gloves, and queen, cages. ARTHUR RATTRAY, Almont, Mich.

WANTED.—Partner to run a large apiary for comb honey, in this state; must understand business. T. B. NICHOLSON, Shuqualak, Miss.

WANTED.—A young man to care for bees (run for comb honey), and to work on farm when not busy in the apiary. WARD LAMKIN, King Ferry, Cayuga Co., N. Y.

WANTED.—About 50 colonies of bees in Carolinas or Georgia, near coast. and convenient to ship north by water; also, a carload of eight-frame hives from the South. I. J. STRINGHAM, 105 Park Pl., N. Y.

WANTED.—Bee-keepers who have lost bees the past winter to adopt my double-walled chaff hive this season. Write for full description and prices. GEO. E. HILTON, Fremont, Mich.

WANTED.—Help. Send me a dime if you want a job. Write in full about your experience, morals, habits, and family. Send photo. H. SEATON, Labor Agent, Princeton, Ill.

WANTED.—To know what you have to exchange for 2 honey-extractors, 1 foundation-press, amber extracted honey, 1 cuckoo-clock, 1 child's bed, 1 hot air furnace, 1 base heater for coal, 1 new fur coat. and other things. Address J. E. THOMPSON. Carpentersville, Ill.

FOR SALE.—A limited amount of white sweet-clover seed. WM. CRAIG, Chesaning, Mich.

FOR SALE.—140 colonies of bees for $350. T. H. WAALE, Sara, Clarke Co., Wash.

FOR SALE.—Capt. Hetherington's bees, see "ad" on page 217.

FOR SALE.—Ginseng roots, one year's growth. SAMUEL FREE, Bainbridge, Ohio.

FOR SALE.—Melilotus seed, $2.50 per bushel: 2-oz. pkg., 10c. W. P. SMITH, Penn, Lowndes Co., Miss.

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FOR SALE.—Eggs for hatching at 6c each from my hardy fowls. Booklet free. WALTER SHERMAN, Newport, R. I.

FOR SALE.—Twenty second-hand dovetailed eight-frame hives with Danzenbaker super, complete 4x5 section; also 10 new eight-frame 1½-story L. frame hives complete for comb honey. JAMES MCNEILL, Hudson, N. Y.

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To prevent the adulteration of honey.

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CONVENTION NOTICES.

The Southwestern Texas Bee-keepers' Association will meet at the courthouse, Beeville, Texas, March 10th and 11th, 1904. Free dinners on the grounds each day, and all bee-keepers are invited. Don't forget the time. E. J. ATCHLEY, Pres.

The Northern Michigan bee-keepers will hold their annual convention March 30, 31, in Montague Hall, No. 127 Front St., Traverse City, Mich. We expect a large number of bee-keepers to attend. See editorial in the *Bee-keepers' Review* for December. Read that, and then come to the convention, and bring your neighbor bee-keepers. A. I. Root will be present, nothing preventing. G. H. KIRKPATRICK, Pres.
Rapid City, Michigan.

HAMILTON COUNTY BEE-KEEPERS' ASSOCIATION.

The next monthly meeting of the Executive Committee of this Association will be held in the Grand Hotel, Cincinnati, on Monday evening, March 14, at 7 30 P. M. These meetings are becoming very interesting to bee-keepers, as is evidenced by the attendance of members, and others interested in the success of the industry in this locality. The Association reminds bee-keepers of the approaching opening of spring honey-flow as being the season that requires their increased vigilance and attention to detect the possible re-appearance of foul brood in the apiary in infected localities, and to become familiarized with the remedy for its prevention and cure. Those who are not conversant with the modern successful methods of treatment are invited to be present at our monthly meetings, where much valuable information and practical instruction are to be gained through the reading of papers, and open discussion by the members, so that they may be enabled to treat the disease themselves.
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QUEENS! ATTENTION! QUEENS!

During 1904 we will raise and offer you our best queens. Untested, $1.00 each; $5.00 for 6; $9.00 for 12. Tested queens, $1.50 each; best breeders, $5.00 each. One, two, and three frame nuclei a specialty. Full colonies, and bees by the car-load. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy-Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18, Beeville, Tex.**

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Tested	1 50	8 00	15 00	1 25	6 50	12 00
Select tested	2 00	10 00	18 00	1 50	8 00	15 00

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Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

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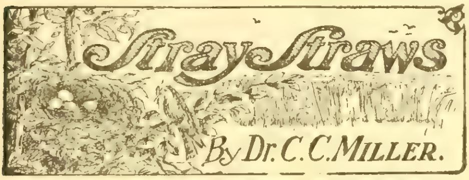


Stray Straws

By Dr. C. C. Miller.

The *National Stockman* says the Illinois Experiment Station has discovered that the bacterium of sweet clover is all right for alfalfa. How's that?

A point in favor of paper packages that has hardly been emphasized enough is the convenience and beauty of form of the honey after being stripped of paper and put on the table. [Yes, this is a good point. I predict a great future for these paper packages.—Ed.]

A. Straeuli, a Swiss authority, declares in *Bienen-Vater* that it is not only his conviction, but that of many others, that there is nothing left for European bee culture but to become Americanized as quickly and completely as possible. [See answer to another Straw on this subject.—Ed.]

I don't know the answer to Geo. H. Roe's question, page 187, but I venture to guess that, in a country where there is "a lot of rain in winter, with very little frost, and then never down to zero," there would be some advantage in having the bees "under a cheap open shed with only a roof."

August Kamprath, in *Bienen-Vater*, speaks of sweet clover as an annual, and says that, on account of strong sweetish fragrance it is despised by cattle, and eaten only by sheep. Even though it be possible that it is an annual over there, I suspect Austrian cattle would learn to eat it as well as American cattle.

D. W. Heise must be converted clear through to give up selling tobacco, p. 189. The Christian merchant who sells tobacco must have a befogged brain or befogged something; yet I'm sorry to say that "in this locality" those who are not thus befogged are scarce as hens' teeth. I've known a man to preach to the boys in Sunday-school against tobacco, and then sell it to them on week days. Consistency, thou art a jewel!

Wax production, can it be made as profitable as honey production? That's the problem a French bee-keepers' society (de la Meuse) has set itself to solve. A series of experiments is placed before its members, with five prizes ranging from $4 to $20. One point to be determined is the comparative results in double and single walled hives.

G. M. Doolittle says, p. 171, he doesn't see why any one should object to using honey in sugar syrup, "even if the same had to be bought." In many cases it would have to be bought, if used at all; and in a large proportion of those cases it would be exceedingly difficult to be *sure* that the honey bought was free from foul brood. Rather than run any risk, would it not be better to use tartaric acid instead of honey? Perhaps it might be better still to feed early enough and thin enough to need neither honey nor acid.

J. A. Green says, p. 180, Illinois honey keeps all right in paper *until the heat of summer*. There's the rub. Doesn't alfalfa honey keep *through* the heat of summer? [No, it did not keep solid in this locality last summer; and that emphasizes the point that such honey should be used up before warm weather. The local bee-keepers should take it off the grocer's hands if they do not wish to ruin their market for such goods, because there is danger that it will run out and daub the shelves, attract flies, and make a muss generally.—Ed.]

I think, Mr. Editor, you'd change your opinion about that metal frame-hanger, p. 179, upon trial. The chief propolizing of a Hoffman is not where the frame rests on the rabbet, but where the end-bars come together; and this the frame-hanger leaves as bad as ever. [But propolizing at the points of contact between Hoffman frames in most localities is not a serious objection. The metal edges would be better than the wooden ones. Your locality is like that of a few others, but very much unlike the great majority of them. I know that you have more propolis than we do here, and it is of a different character.—ED.]

"THE IDEA of using candied honey as a winter food is a good one," p. 184. Now, some novice reading that will feed candied honey and find it a dreadful waste, and then you'll have a lot of explaining to do, Mr. Editor. I've been watching Mr. Fixter's doings with interest, but I protest against his calling Scholz candy "candied honey." Candied honey has no sugar in it. [Thank you for the correction, doctor. I misunderstood Mr. Fixter; and now that you have called my attention to it, the thing that I was apparently indorsing would be wasted.—ED.]

"BEE-KEEPERS, as a rule, will not have a cover *just* wide enough," p. 175. That's new to me. "In this locality" the opinion is vehement that any thing more than *just* wide enough is a nuisance. [I do not know of any one else in your locality who has very much to do with bees. That statement was based on wide experience as a manufacturer. We used to make our flat covers just wide enough; but bee-keepers kept complaining until we added ¼ inch on each side. In your article, is not the local "opinion" you speak of *your* opinion?—ED.]

DELOS WOOD has sent me a sample of honey artificially ripened. Just what is the value of the artificial ripening can, of course, be told only by direct comparison with the same honey ripened in the hive; but this honey seems of good flavor, although hardly as heavy in body as honey produced here. [I have tasted samples of bee-ripened and naturally ripened honey. While the two compare very favorably in flavor, yet I could see the difference was in favor of the naturally ripened product. Is it not true that the process of ripening on the part of the bees changes the honey chemically to a certain extent?—ED.]

I'VE PUZZLED no little over that performance of E. A. Newell, p. 188. Now see whether I have the correct situation after he's through: The sanitary bottom-board on the old stand, and on it a clean hive with frames and starters, on that a honey-board (queen-excluder), and over that the old hive with the brood. Is that right? If the gas goes from the bottom-board up to the second story and does its work there, wouldn't it be simpler and better to set the old hive, bees and all, directly on the sanitary bottom-board without any clean hive in the case? [If your idea is correct (and I think it is) the old hive would be just as good.—ED.]

BRO. A. I. ROOT, is it not barely possible that you might get one of those hollow potatoes without a hollow (p. 192) by way of a sport? Are they just as hollow on very poor soil? [I suppose, doctor, it will have to be done by way of sporting. But this sporting business does not always go the way we want it to. I have tried them on only one kind of soil—that of Northern Michigan—and there every thing was hollow. The little bits of potatoes, not larger than hickorynuts, showed a rudimentary hollow; and the man who sent them to me gave as a principal reason why I should not bother with them was that they were all hollow.—A. I. R.]

ONLY TWO DAYS bees could fly since the first of December at Medina, p. 172. That's just two days more than here. I happen to have the morning temperatures from Jan. 27 to Feb. 18, and the average is 4 above zero. And that includes the warmest spell since Dec. 1, and does not include the coldest. No, the weather has not been sweltering. [This is one very strong reason why you should winter indoors. Many facts go to show that outdoor wintering is practical only where the bees can have one, two, or three days of mid-winter flight; or, we will say, days when a cluster can change its position, and thus get on to a fresh supply of stores.—ED.]

IN REPLY to the question, p. 167, "If the entrances are kept reasonably clear, is it not true that ⅞ depth would be enough?" I should say that, if the entrances were constantly kept entirely clear, a depth of 2 inches would be very much better, especially if the bees should fill nearly all the ⅞ space. The deeper space gives the bees more air. Are you entirely sure you might not have had better results with the deeper space? To your other question, I reply that, even if I should look at my bees in the cellar every day, I should still want the deep space. [No, I am not; but we have secured reasonably good results with ⅞-inch depth. The only thing that concerns me is that you may be right, and that we are every winter losing a certain advantage that might accrue from the deep entrance. I should like to hear from our subscribers on this point.—ED.]

IT SEEMS STRANGE that the man who has done more than any other man living to advance bee-keeping should so stubbornly oppose progress as does Dzierzon in some things. American bee-keepers will smile when they read that he denounces opening a hive from above because it takes so much time, and can be done only by killing a great many bees. [Is there not here a good lesson for you and me (for we are both young, you know), that, when we get old, we should be careful not to allow our old preconceived notions to run us into obvious error? Certainly American bee-keepers will smile at Dr. Dzierzon, notwithstanding we may admire him for what he has done in the way of clearing up the subject of parthenogenesis. And we admire him, too, for placing bee-keeping in Germany on a higher plane of practicability than it formerly occupied. But he did not begin to make as long a stride forward as did father Langstroth. If there is a growing conviction in Europe that European bee culture should be Americanized as soon as possible, it only goes to show that the bee-keepers on the other side recognize that Dzierzon did not go far enough.—Ed.]

J. M. Gouttefangeas, in *Revue Eclectique*, says ventilating bees work *tail down*, and calling bees *tail up*. He thinks the call, as when a swarm is entering a hive, instead of being a sound of joy is one of fear or alarm. Among the proofs he cites, is that this same call, tail up, is given by bees whenever disturbed, and even by chilled bees when warmed up. But it's hard to give up the notion that a swarm marches into its new home with a note of joy. [I had never noticed there was any difference in the position of the tail when the bees were fanning. I had always supposed it was up. I shall be interested in making this a matter of observation the coming summer. Like yourself I do not believe it is true there is no joy on the part of the bees when they march into their new home. If there is any difference in the elevation of the tails it must be due to the idiosyncrasy of the particular swarms or colonies.—Ed.]

In reply to a question, p. 168, I can't look the matter up now, so can not say positively, but I *think* that several bee-keepers' organizations in Europe have done more than our National in securing legislation, etc. They get more from the public crib than we do. The Central Union in Austria, last year, got grants of $2788, and its balance-sheet shows a total of $7753 received and disbursed. This year it has set itself the task of providing for any or all of its 8088 members at a low cost of insurance against fire, thieves, damage done by bees to others, flood, avalanche, earthquake, and foul brood. Isn't that dusty? [I give it up; but, just the same, I am glad now I threw in those question-marks, as we are now in possession of certain information that otherwise we might not have had, and we will make a strong effort to make our own National as strong financially as those that have government aid. I will insist on this, however, that there is no organization *without* government aid that has "kicked up so much dust" as the National. If you have any evidence to break down this statement, trot it out.—Ed.]

Stamp outfit for making numbering-tags at 75 cts., and brass stencils for 35 cents, page 156. Good! that helps. Now please go a step further and tell us what you'll furnish the tags for. A further suggestion: Packing-boxes have printing on them that stands the weather. Why can't you print wooden tags ⅛ thick the same way? I'd like a lot of them running from 1 to 100. Fastened on the center of the front of the hive, a number means just what it says: at the right the number 25 would mean 125; at the left, 25 would mean 225; and so of other numbers. Higher numbers could have other locations. I've used them that way successfully; but unless costing less I'd rather have the full numbers printed. What'll you take for such printed wooden tags? Or could you print zinc tags? [We have been furnishing manilla tagboard numbers up to 100 — tags immersed in linseed oil—at $1.00 per hundred. We could furnish the numbered wooden tags ⅛ inch thick, and the width of a section, for about $2.00 per 100. They would cost more to print, as we can print the tags in large sheets, and then cut up. We can furnish the plain strips of wood, not numbered, for $3.00 per barrel. This would be cheaper, and the bee-keeper can do his own numbering with a 35-cent stencil. When these become soiled he could make new at a small expense.—Ed.]

Pickings
from Our Neighbor's Fields
By
"Stenog."

Again the warlike shot and shell
Against our kind are hurled;
The long-expected fight is on
That may involve the world.

* * *

BRITISH BEE JOURNAL.

The appearance of the *B. B. J.* has been greatly improved lately by a dress of new type.

* * *

Active measures are being taken by the Germans to develop bee-keeping in Southwest Africa. Several colonies have been carried there from Germany.

* * *

Radium is just now commanding a degree of attention that is in an inverse ratio to its scarcity; but from what we do know of it, it is entirely safe to say it is destined to revolutionize the science of medicine so far as bacteriology is concerned, and add immeasurably to human life and comfort. It really seems as if we were on the threshold of an advance in science that will change for the better all conditions of human life. The exceeding scarceness of this substance is at present the only drawback to a rapid acquisition of knowledge as to what it can and will do for man. But that objection once applied to aluminum; for some of us can remember when it was as valuable as gold, even while we drink tea made in cups of that same metal. A very well-informed writer in the *British Bee Journal* has this to say about it as a cure for foul brood. His last sentence will surely be the hope of all of us.

> In experiments made it has been found that the rays of radium have proved fatal to all kinds of bacteria. A great many tests have been made in treating different kinds of germ disease, and in almost every case exposure to the rays destroyed the germs, so that on

trial being made it was proved that they cease to grow and multiply in a gelatine medium. Experiments have been made whereby the rays have been allowed to pass through a hole in a metal disc and strike on a small mass of gelatine containing active germs, with the result that they were developed, *except on the spot where the rays had struck*. This undoubtedly proves that a comb so treated would be sterilized, and that radium may prove able to accomplish a cure of foul brood. I ask no one to accept this as a truism until the experiment has been tried and found a success. All I now plead for is, that, theoretically, it should do what I claim for it. Some of our scientific bee-keepers might be able to bring a small piece of comb, containing active germs of foul brood, under the action of radium rays, and prove if the deadly possibilities of germ or spore would be rendered innocuous. The heavy cost of even the most minute particle may prove a bar to any thing more than this simple experiment; but this wonderful force is only in its infancy, and by and by will become more common and attainable. I hope this is not merely a vain dream!

⁂

Dr. Miller's remarks about Dzierzon, in Straws, this issue, embolden me to refer to something I read a few days ago in a Spanish journal concerning the venerable bee-master. When all the talk is on one side it is a little disagreeable to attempt to sweep the Atlantic in another direction by way of criticism. The article in question, signed by a man named Weber, probably a German, begins thus:

> Some time ago the bee-keepers of other countries had considerable to say concerning a species of idolatry in which the Germans hold Dzierzon. They credit to him all discoveries, all inventions, all progress in modern apiculture; and when, at apicultural reunions, Dzierzon speaks, all, even the most notable, bow their heads before the oracle and are silent.

At an apicultural meeting in Breslau, in 1901, Mr. Bassler, editor of *Deutsche Imker aus Boehmen*, made a speech in which he inveighed bitterly against the servile attitude of the Germans concerning Dzierzon, and yet gave him a world of credit for the good he has unquestionably done. The speech is one of the finest I have ever read, but too long to give here. One paragraph concerning parthenogenesis is the most striking of all:

> It is claimed that this good gentleman, Dzierzon, was the first to discover parthenogenesis — that particular property that a bee-egg has of producing, without being fertilized, a male bee. I have shown to him that 500 years before Christ, old Aristoteles published this wonder; and that Huber, our great Geneva bee-lover, had, at the beginning of the past century, demonstrated scientifically by anatomy the same thing by the laying bees he sent to Miss Jurine.

Concerning hives and frames he says further:

> Likewise, to Dzierzon is attributed the invention of the movable frame. I have shown him that movableness of frames was practiced in France while as yet there *was* no Dzierzon, who, to tell the truth, did not invent movable combs, and was not himself converted to "mobility" until the square frame was adopted in all parts. Even to-day his frame is but an imperfect one, and his hive only half movable, which even his most ardent admirers do not use.

While all this seems to be true, it is still a greater satisfaction to know that Dzierzon's life is made happier by an overweening fondness on the part of his fellow-citizens than to think that father Langstroth's life was embittered in this country by being so greatly underrated and misrepresented by the very men who should have pursued an opposite course.

Conversations
With
Doolittle

ABOUT WINTER STORES.

"I have been reading what you have said about your severe winter in your locality, and have come up from Georgia (by letter) to have a little talk with you, and invite you to come down and winter with us next winter, for we have none of the snow or zero weather which you have in York State."

"I thank you very much, Mr. Brown, for the invitation; but I have so many ties which bind me here that it is not probable I can see my way clear to come. I know I should enjoy your winter very much, for the winters in the sunny South are very pleasant; at least I found it so the winter I was in Arkansas. Yet there is a certain enjoyment up here at the North with our bright coal fires and cozy rooms, in and around which the family gather, bidding defiance to the cold without, that is not to be had in the South. 'Small comfort,' do I hear you say? Well, it may so appear to you; but we manage to keep very comfortable the most of the time."

"I know there are blessings and comforts at the North which we Southerners can not realize; and the most of us are quite willing to be deprived of them in considering *ours* the better. But suppose we proceed to the little talk I wish to have with you."

"I am agreeable. What shall it be about?"

"My bees seem to be getting short of stores, and I am afraid I shall have to feed before April. I supposed I gave them the regulation amount which you advocated (25 lbs.), last fall, but I might have failed in this."

"Perhaps I should have qualified my ideas of winter stores somewhat. I was advocating that 25 pounds of stores should be sufficient for colonies in this northern clime."

"Don't you think bees will consume as much honey in the South from the middle of October to the middle of April as they would at the extreme North?"

"As you put it, I would say that I should estimate it would take more stores to carry bees from the middle of October to the middle of April in the South than it would at the *North*, but I should judge that bees would winter on less with you than with us."

"I do not understand. Please explain more fully."

"What I mean is this: I should consider that it would take more stores to *winter* a colony where winter held sway for five to six months, as it does here, than where winter lasts only about two months, as I understand it does in the South. After about the first of March I understand it is *spring* in the South, while we often have six weeks of winter weather after that time."

"Then you alluded to the time the bees are in a partially quiescent state, by the word 'winter'?"

"Yes. When bees begin to breed to any great extent, then is when a great consumption of honey occurs; and if no honey is to be had from the fields at such times of rapid breeding, the stores in the hive are drawn upon so rapidly that starvation often occurs, when the apiarist thought his bees had sufficient stores to last for months, he judging from the consumption needed for the fall and winter months. Hence the wise apiarist has an eye out on this matter, from now on till the flowers give honey in the spring, unless his hives were very heavy in honey the preceding fall."

"But what about the warm weather in the fall we often have when the bees can fly nearly every day, and that after all nectar secretion in the flowers has past?"

"Some seem to think that mild weather with no honey-flow is a trying ordeal on the stores in the hives; but it depends very much on when this mild weather occurs. If in October, November, December, and January, and the bees are on their summer stands, I have found that here, in Central New York, they consume far less stores than they do in cold weather, as at this time there is no disposition toward brood-rearing, and the mild weather does not call for so much honey being used as 'fuel' as does the cold. At such times colonies outdoors consume but little more than do those in the cellar, or about a pound a month, while with very cold weather, as the present winter has been, the colony outdoors requires from double to treble that amount, even when wintering perfectly."

"I had supposed that in your cold climate bees used five or six pounds a month."

"Oh, no! not when wintering perfectly. But let any colony become uneasy from any cause, and they will go to eating voraciously, and from this brood-rearing will result in nineteen cases out of twenty, and the consumption will increase from the average of from one to three pounds a month to from five to eight pounds a month, generally resulting in that colony dying before April, or its vitality becoming so exhausted so that spring dwindling will be the result. I suppose with your short winters you do not have this state of affairs."

"Not to any such extent as you Northern bee-keepers do; but we have a large consumption of stores after brood-rearing commences."

"Undoubtedly this is so, on the same plan it is with us in April and May, when our healthy colonies begin to rear brood rapidly preparatory to increasing for the swarming season. And I judge you are as pleased to see brood in February and March as we are to see it in April and May."

"Yes. But what am I to do for stores before the flowers open which give a secretion of nectar?"

"It is generally better to know that each colony has enough in the fall to carry it over till nectar is expected in the spring, even if you had to allow forty pounds for each colony; but if, from any cause, the bees do not have enough when brood-rearing commences at the beginning of the season, it is well to feed, for there is no time in the year when it pays better to feed than after the bees begin to rear brood and have general weekly or daily flights; for the feed so used not only preserves the life of the colony but helps much by way of stimulating the colony to greater efforts than would otherwise be made; and if this stimulation brings your bees on the stage of action in the right time for any honey harvest you will be doubly paid for all feeding you may feel obliged to do."

Editorial
By E. R. Root.

The Ohio foul-brood bill, spoken of on page 172, has passed the House, without a dissenting vote. It now remains for it to get through the Senate, and finally receive the signature of the Governor. If the bee-keepers of the State do their duty in writing their Senators it will pass the Senate.

A CORRECTION.

REFERRING to the next to the last Straw on page 168, Dr. Miller says he was not objecting that the thing could not be done—giving a larger proportion of young bees to a nucleus—but that he was interposing in behalf of the beginner because we had not told *how* it was to be done. In my footnote telling how, I spoke as if the doctor did not know the kink, when a more careful reading would have shown that he did. I deem it but right and fair that I make this explanation, although the doctor does not expect or ask it.

SALISBURY'S AUTOMATIC WINDMILL ELEVATOR.

ELSEWHERE in this issue I have referred to Salisbury's elevator that runs by wind power, works for nothing, and boards itself. Since that article went to press, the following letter shows that the thing is a success in every way:

> I have a "rig that runs." "It is built to run, and it does it"—not an auto. but an elevater by wind energy stored up by windmill. There is just one drawback, now that we have dry sand—"*dusty*." However, I

have built an opening to the outer air from the top of the upper bin of sand so there is a draft over the top of sand to the outer air. In time we may get the dust all out.

There is "nothing to watch but the brake." Step on the elevator; pull rope to valve at bottom of sand-bin. Take off brake. She moves. Go to top floor. Pull brake-rope. Step off. Pull valve rope at bottom of bucket. Walk around. Step on elevator. Take off brake. Down we go. Fine. F. A. SALISBURY.

Syracuse, N. Y.

WINTER LOSSES.

PLEASE send in postal-card reports of how the bees are wintering in your locality. It is important to know this, as it will have some bearing on the price of honey. We will give a summary in our next and subsequent issues. We fear heavy losses in some localities. In York State heavy losses are reported already. Make your reports brief—not over three or four sentences —or we can't use them.

RETAILING CANDIED HONEY FROM SQUARE CANS WITHOUT REMELTING; A VALUABLE KINK OF THE TRADE.

MR. JESSE WARREN, who has charge of our retail-honey department, has developed a plan by which honey that is candied solid in square cans may be removed bodily, cut into one-pound bricks, and wrapped in waxed paper just as a grocer wraps up bricks of creamery butter. We have taken some photos; but before I can get these before the public the matter will be somewhat out of season, so I give the essential principles now. His *modus operandi* is this:

He takes a can of honey that he *knows* is candied *solid and hard* to hold its shape. He then takes a pair of tinner's snips, cuts the tin down the sides, and then pulls it off from the cake of honey. He now takes a piece of iron or steel wire, about No. 20, or a small strong fishline a yard long. To each end of this is secured a wooden handle. The cake of solid honey is laid on its side on a board, when he slips the wire under the cake, back, say, two inches. He draws it around the cake, crosses the two ends of the wire, grabs the handles, then pulls slowly, when the wire passes easily and nicely right through the whole cake. A paddle or thin-bladed knife is then inserted in the crack where the wire passes, cleaving a slab of honey two inches thick, the size of the top of the square can. Another slice is taken off in a like manner. These slabs are then resliced the same way into one-pound bricks. They are next wrapped in paraffine paper. Another paper wrapping with suitable label, and directions how to handle, makes a very neat and pretty package that costs almost nothing. The only expense is the sacrificing of the can. But this is offset by the saving of the labor of melting the honey to get it out, and then recandying after it is poured into paper bags.

The wire method of cutting originated with Mr. Warren, so far as I know. It must be remembered that a knife will not cut a solid cake of candied honey.

While we have used alfalfa honey for cutting up into bricks, we can use some clover. Try it and be convinced. A little later on I will have illustrations showing more exactly the method of procedure.

As I have before stated, all candied honey should be sold to the local trade, or to the trade that knows *you personally*. After you have once introduced it, it will sell of itself. Paper-bag honey sells without any effort among our employees. Solid alfalfa-honey bricks, put up in the manner I have explained, sells equally well. Try some, then go out among your friends and neighbors and see how it will sell.

Honey in barrels that has candied solid can be treated with a wire, and cut into all shapes and sizes. Loosen the hoops, pull off the staves, then slice the honey with a wire just as you want it. I should, perhaps, explain that, when the wire passes through the honey, the cake will cleave to the larger piece; but a thin-bladed knife or paddle will effect a separation very easily *after* it is cut with the wire.

HOW TO NEARLY DOUBLE YOUR MONEY.

I hold in my hand a sample of candied honey the size and shape of a two-inch cube. This was cut with a wire as explained just above. It is wrapped in paraffine paper, and retails for a nickel. It has a very neat and toothsome appearance; and the package—well, it does not cost any thing comparatively. One solid chunk of candied honey, as it comes from a square can, will furnish 160 of these cubes, which, at 5 cents each, will make the entire contents net the bee-keeper $8.00, or 13½ cents per lb. for honey costing 6 or 7 cents. The time of cutting up the chunk from a square can, and wrapping, will occupy about three hours. If this is done on a rainy day, or by the children, the expense will be nominal. Try the experiment, and report results. You will find it (the honey, I mean) goes off like hot cakes.

GOVERNMENT AID FOR APICULTURE.

WE have been aware for some time that the United States Department of Agriculture was anxious to do a great deal for the apiarian industry of this country, as, indeed, we believe it is disposed to do for every branch related to the tilling of the soil; but naturally, since there are so many *great* agricultural industries, such as cotton, corn, and wheat raising, the stock industry, and all of those matters upon which these depend, such as the development of irrigation, methods in forestry, and the improvement of the soil through the use of fertilizers, our own branch has, in a great measure, had to be patient for its due recognition. We have also been aware that Mr. Frank Benton, charged at the Department of Agriculture with attention to correspondence relating to apiarian matters, has never, during his connection with that Department, allowed to pass unutilized an opportunity to push forward the claims of apiculture, and that, little by little, some progress has been made, notwithstanding the funds for any work in connection with apiculture have been next to nothing.

We are glad to be able to say, however, that far more good to the industry at large has resulted from the Department work thus far done than most bee-keepers realize, so quietly has it gone on. Several Department bulletins on apiculture have been issued, and have reached a wide cirulation, especially among those who before knew nothing of the existence of bee literature. Numerous editions have been called for, and great general interest in the pursuit has thus been aroused. Much has been done through the prestige of the Department to combat and put down erroneous ideas regarding the adulteration of honey. The Department has lent its aid toward securing needed foul-brood legislation in various States, and also enlightened decisions in legal controversies involving important points and precedents affecting apiculture. The needs of the industry in various sections of the Union have been under consideration at the Department, and further plans to benefit each section have been matured. We are assured that these would long since have been in process of execution had not the constantly increasing demands for direct work against injurious insects been so great that the funds appropriated for the Division of Entomology could not be made to reach beyond the most urgent needs for remedial measures against serious damage to staple crops. But a new era has opened in this line of work; and legislators, in view of the great benefits that have come through it, are beginning to appreciate the need of greater liberality toward it.

In the matter of apiculture at the Department, still another distinct line of progress has been carried forward which will count for much in the future; and that is, the gaining of a proper recognition of the just claims of apiculture, and the adjusting of its status to the other branches under the protection of the Department, coupled with such appeals for proper financial recognition as must result eventually in the substantial grants so much desired, with such liberty of action as is necessary to the accomplishment of substantial work for the advancement of apiculture. The field in which careful experimental work may be undertaken on a scientific basis in the interests of apiculture is so wide that there is vast opportunity for years of such work; and the efforts to secure permanent and suitable recognition should look to a continuation of the same—to permanence in a section or division of apiculture under governmental auspices, the head of which, with all assistants, should receive their appointments under civil-service regulations solely on the basis of their fitness for the work.

Viewing the matter in this light we have taken occasion to urge upon our representatives in Congress that the recommendation of the Honorable Secretary of Agriculture in his last annual report, as regards the Division of Entomology, should receive the support of every member of Congress who had our interests at heart. We refer to the very urgent request which the Secretary made at the close of his report for 1903, to the President of the United States, "that the Division of Entomology be developed into a Bureau, in accordance with the estimates which he had made, and the recommendations of the Chief himself, of the Division of Entomology." These recommendations contemplate numerous sections or divisions of the work, each under an expert in his line, among others a section devoted to apicultural investigations with a distinct sum of money for the carrying-on of experimental work and the publication of the results of such work. We can not conceive that there is in the whole length of our land a single bee-keeper but that would welcome such an advanced step in connection with our beloved pursuit. It is something which should be heartily supported irrespective of personal considerations, for the building-up of such an institute or division devoted to investigation of any or every topic of importance connected with our pursuit, is for all time — at least, all will sincerely hope that such will be the case, and that those who come after us will commend our judgment in building it upon such broad lines. We think, therefore, that every political or personal difference should sink into insignificance in connection with this matter, and that, to the legislators of whom we would ask this recognition, we should present a unanimous request and a united front, which should cause them to think seriously that we are in earnest in our desire for recognition beside the other respectable industries of the country.

Viewing the matter in this broad light we feel certain that the mass of bee-keepers who read this will not hesitate to urge upon their representatives in Congress a support of the measure, in connection with which we consider ourselves extremely fortunate in having so able and liberal an advocate as the Secretary of Agriculture himself, the Honorable James Wilson, namely: "that the Division of Entomology of the United States Department of Agriculture be made a Bureau of Entomology, with a Division of Apiculture."

No matter, therefore, how humble you may consider yourself, to whatever political party you may belong, however slight you believe your influence to be, drop a line at once to your Representative and one to each of your Senators in the United States Congress, stating to them that you would be glad to have the above recommendation of the Secretary of Agriculture carried into effect. The bill is now under consideration, and such a deluge of letters and cards should be received by members as will show them that we are deeply interested in the matter.

GLYCERINE IN HONEY TO PREVENT GRANULATION.

We have been trying small percentages of glycerine in honey to see if it would prevent candying. A certain lot of clear honey was set aside. Some bags had honey without glycerine; in others there was one per cent, in others two per cent, and in others three per cent. They were then put in a room where it freezes very hard. Now for results: There *was not one of those samples*, not even those without glycerine, that showed any trace of candying; but it was very cold during the period mentioned, and the honey, although perfectly clear, was almost as solid as a brick. It appeared to be like some very thick tenacious crystalline taffy. We brought it inside and let it warm up, when it became as liquid as ever. It begins to appear that honey, in order to candy, must not have too cold nor a too continuous cold temperature; a warming-up and then a freezing, another warming-up and another freezing, and so on, seems to be necessary to hasten the process. But above all it is very important to have a little candied honey inserted in every lot, on the principle that a little leaven leaveneth the whole lump.

My brother is making some experiments at our Chicago office along the same line and will report soon. But he says that the two-per-cent glycerine imparts to the honey a very slight taste of the glycerine; that our office people could detect tinctured samples almost unerringly. More anon.

USELESS PATENTS ON HIVES AND THEIR APPLIANCES; THE MAN WITH THE FLYING-MACHINE THAT DIDN'T FLY.

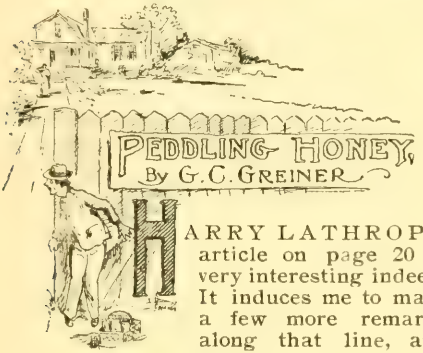
Very recently a customer of ours wished to know if a certain idea had ever been patented. As we have copies of all the patents that have ever been issued on apiculture on file in our office, the same being properly indexed, I made a general search; but the invention was of such a nature that it probably could not be fully described in an index, and I therefore found it necessary to go over all the patents one by one. While I did not find what I was after, my search revealed one fact which I think would be interesting to our readers, and that is this: Nine-tenths—yes, I am safe in saying ninety-nine per cent — of all patents relating to bee culture have been issued to men — I can hardly call them bee-keepers — who have had almost no practical knowledge of the general principles covering hive-construction and the general habits of bees. The great majority of these useless inventions, even if they would accomplish what was expected of them by the brilliant(?) geniuses that evolved them, would have absolutely no sale, for the simple reason that the dear public is not going to pay for something for which it has absolutely no need. Let me give a few illustrations of some of the wonderful(?) inventions.

One inventor got up a hiving-apparatus that consisted of cogwheels, shafting, chain gearing, and elaborate framework, for dumping a swarm, after it has clustered, into a hive. The whole apparatus would cost a hundred times as much as any swarm is worth. And, just think of it! here was a man who had the temerity to pay out $100 for a patent covering something he supposed would have a demand. Was he after glory or money? And then the devices that were gotten up to catch the moth-miller! The amount of brains and time that has been spent on this one subject alone is enough to have made a nice little fortune. We have something like 1500 apicultural patents in our office, which number comprises the entire list. Probably a fourth of them is devoted to moth-traps—say there are 300; then let us estimate $.00 as the cost of each patent, or $30,000. This amount went into the hands of patent attorneys. Besides this is loss of time, which, if it had been spent behind the plow-handle, would have made another fortune.

It does seem as if the general government ought to have an expert to pass on the practicability of some of the subjects that come up for patents. This would afford protection to some fools who need to be saved from themselves, and save thousands of dollars; but it might also throw thousands of quack attorneys out of business.

If there were an expert in each department who would rule out certain inventions that have no value, it would save good dollars, wasted efforts, and blighted hopes. But the government does do something in this line to a certain extent. For example, some years ago a poor deluded chap, poorly dressed, a typical inventor (in appearance), desired to see A. I. Root in private. An ordinary office would not do. Somebody might be listening over the transom, and the walls might act as a sounding-board so that the valuable secret that he was about to impart might be given to the world. No, he must go out into a ten-acre field. Much against his will, A. I. R. finally yielded, and then the fellow drew from his pocket some well-soiled blue prints showing a flying-machine. He had applied for a patent; but the examiner refused to consider his application unless he would make a practical working model. This would cost hundreds and perhaps thousands of dollars. So our friend sought out some one with means to help him get up a model that would demonstrate to the government that his ideas would work; and would A. I. R. help him? He would give him a big interest in his invention, and he *knew* it would work. A. I. R. saw at a glance that the man did not understand the first principles of philosophy, and could give him no encouragement. We never heard of the invention further; and the probabilities are the government refused to recognize it. If the same principle had been applied to some of the bee-inventions, half of the patents that have been issued would have been barred out.

GENERAL
CORRESPONDENCE.



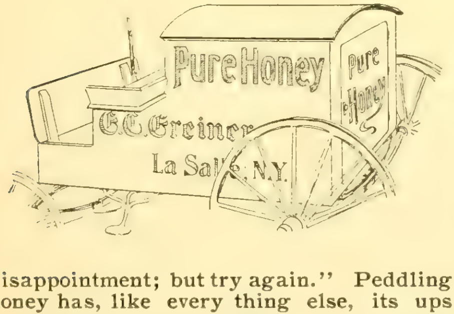
PEDDLING HONEY,

By G. C. Greiner

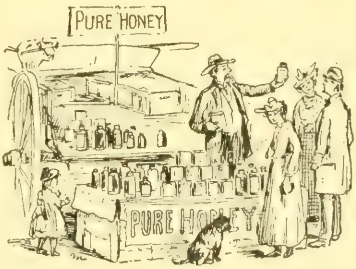
Harry Lathrop's article on page 20 is very interesting indeed. It induces me to make a few more remarks along that line, and give a slight touch of the other side of the picture.

The editor says in his footnote, "We are not all born salesmen." This is true, and it applies to my case to the full meaning of of his assertion. Being naturally a little bashful, not easy to make friends among strangers, I have no natural inclination for the business of traveling salesman; still, if I encounter the inevitable, if I am compelled to take that *role* in life's drama, I can do quite an amount of "blabbing," which is an essential feature of a successful salesman.

For the last two or three years I have sold all my honey, which I did not sell to neighboring stores and groceries in larger quantities, by going from house to house, selling a can or more at a time; and this experience enables me, although I have never been so completely disappointed as he reports, to sympathize fully with the writer of the above mentioned article. As an encouragement to Mr. Lathrop I will say, "Don't give up on account of one day's disappointment; but try again." Peddling honey has, like every thing else, its ups and downs; we don't always strike it rich; some days it may seem like terribly steep uphill business, while other days may roll in the money by the handfuls. As an illustration, and a proof that the latter sentence is almost literally true, let me give you one day's experience.



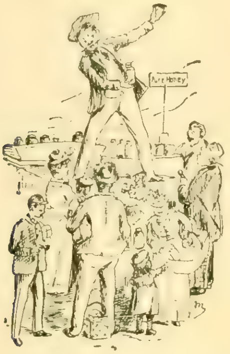
Late last fall I chanced to take a trip to Niagara Falls with the intention of making a display of my goods at the city market. The way business is transacted here is very informal. One of the streets running at right angles to Main Street is set apart as a gathering-place of producers and consumers, to transact a general market business. Here the farmers from miles of surrounding country, with their various loads of produce, comprising any thing from a dozen eggs to a load of hay or grain, drive in in the morning, back up against the sidewalk, and make a display of their goods, awaiting purchasing callers. There are no reserved seats; but the rule is that whoever comes first is served first; that is, the first comer takes his stand next to Main Street; the second next, and so on, until the street is lined on both sides for a considerable distance. The advantage of being at or near the head of the street is plain to be seen. Any customer who finds what he intends to purchase is not very likely to travel the whole length of the street just to see what the rest have to sell.



"At first things, looked a little gloomy."

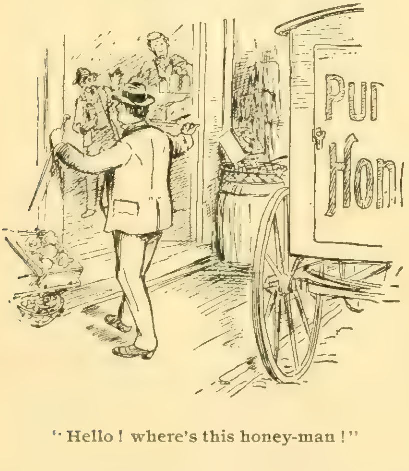
When I arrived at the place it was rather late. The line of would-be sellers was a long one, and, by good rights, I belonged with my rig way down at the lower end. This, however, did not suit my fancy. I turned around at the lower end, and, looking for a chance when driving back, I found a little gap near the head between two farmers' wagons, almost wide enough for my rig. At my request one of the men, thanks to his good nature, moved a little to one side, which gave me a chance to back in between. Thus stationed I made my display of goods, which consisted of extra nice extracted honey in pint and quart cans, all liquid and sparkling, and some fancy sections of comb honey, and awaited results.

At first, things looked a little gloomy. Purchasers did not flock in as I had hoped, until after some minutes of patient waiting. One passing lady, in looking at my honey, asked: "Is your honey *pure?*" The reply I made must be imagined, for it would fill more space here than the editor would be willing to allow. But let me emphasize—here is where the blabbing came in. In answering her question I delivered a good half-hour lecture in less than two minutes, trying to convince her of the purity and all the good points of my honey. In the meantime, passing people had stopped to listen; and by the time my lady friend was ready to buy one of my quart cans I had quite a crowd around me. To cut the story short, for quite a few minutes I handed out cans, mostly quarts, as fast as I could make the change, many of the purchasers promising to buy more the next time I attended the market, if the honey proved what I had recommended it to be.



"Is my honey pure? now listen!"

When the market closed, at 11 A. M., I had a few cans left. With these I drove to Main St. and tied my horse in front of one of the stores, where I had a little business to transact. A few minutes later, while I was conversing with the storekeeper inside, some one opened the door and inquired:



"Hello! where's this honey-man!"

"Hello! where is this honey-man?"

After introducing myself he requested me to show him what I had to sell. It did not take very long to convince him that I carried the genuine article; and, what pleased me still more, was the fact that he ordered two cans to be left at the corner drug-store across the street.

When I delivered the cans they were closely scrutinized by the clerks and some other parties who happened to be present, and one of the clerks asked:

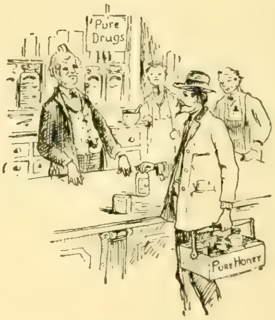
"What guarantee have we that this is pure honey?"

Here another lecture-like conversation, too long to be repeated, took place, the substance of which may be concentrated in my reply:

"First, pure honey and my name and address are on every package; and, second, back of this is the New York State law that prohibits all honey adulterations."

Before I left the place I sold two more cans to those other parties.

After this last deal I had two quart cans and five or six pint cans left; and, being well satisfied with my two or three hours' work, I started for home. On my way I had to pass the hardware store where I had purchased my honey-tanks. I am well acquainted with one of the proprietors. He always seemed to be quite interested in bee-keeping, and ready for an occasional bee-talk. Not expecting or intending to make any sales I stepped in to have a few minutes' chat with my friend. After exchanging the usual salutations of the day I said, "Mr. N., would you like to see what I am selling?"



"What guarantee have we?"

"Certainly," was his reply.

I reached back for my sample-case, which I had taken in and set a little to one side, and placed it on the counter. The result was most gratifying to myself. It brought out many exclamations of admiration. One of the nearby lady clerks said: "Oh! isn't this honey fine? I guess I'll take a can of it."

Then the proprietor chimed in:

"Yes, this *is* nice. I am not keeping house myself; but I'll take a can to make my landlady a Christmas present."

Another clerk, just passing on his way to dinner, looked at the honey, handed me the cash, and took one can home with him.

The few pint cans I had left when leaving the store I sold at a grocery before I reached home, and this closed a profitable day's peddling honey.

A great help in selling honey on the road is a proper traveling outfit, which enables us to present our products in clean, neat, and inviting appearance. I know from experience that at least one-fourth of my sales can be directly traced back to this feature. A full description of my outfit, with illustration, I will give later on.

La Salle, N. Y.

F. A. SALISBURY.

The Dealer in Bee-keepers' Supplies; how he Makes Use of the Automobile for Business and Pleasure.

BY E. R. ROOT.

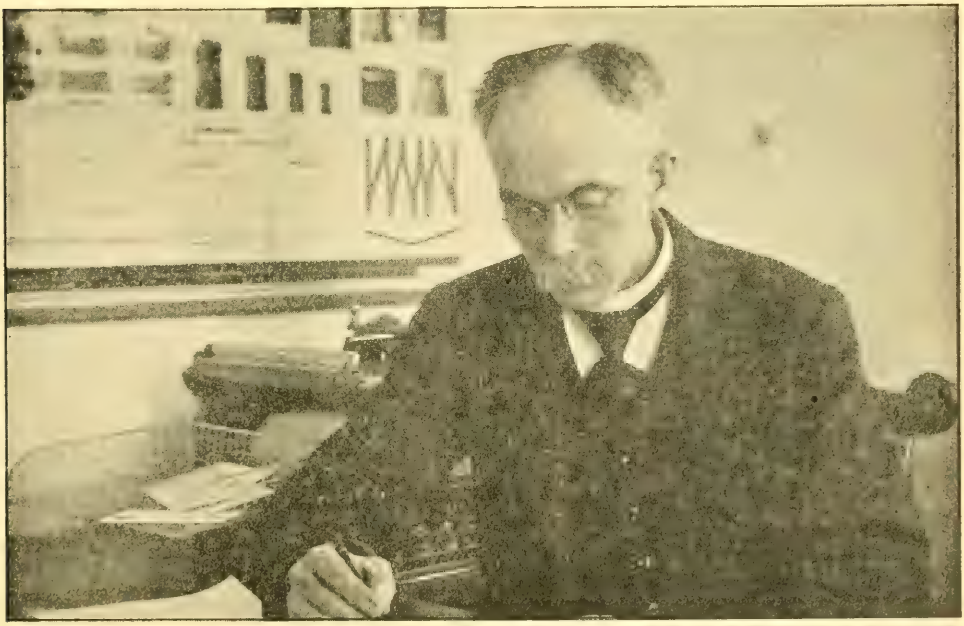
We have in contemplation a series of articles showing the faces of some of the dealers in bee-keepers' supplies representing various manufacturers in the country. Many of the names of these dealers are like household words in bee-keepers' homes; and, naturally enough, we should like to know them a little more intimately, and so we propose giving you a look at their faces, and, in some cases, their place of business.

I have already introduced to you Mr. F. H. Farmer, of Boston, and now take pleasure in presenting Mr. F. A. Salisbury, one of the largest dealers in supplies in the United States. He is a good fellow, a splendid business man, very systematic in every thing he undertakes. In office paraphernalia and office fixtures he has every thing down to a science. His place of business is located in the residence portion of Syracuse, one of the pleasantest cities in Central New York; and when business is not rushing he finds pleasure and diversion in driving a horseless carriage. Just before going to Syracuse I wired Mr. Salisbury that I would be there on a certain train. Much to my surprise he met me at the station and escorted me to his automobile. The snow was deep, and it was then snowing furiously.

"My, oh my!" I said; "you are not going to try to take me these two miles right through this snow to your home in that thing, are you?"

"Why not?" said he with a smile. "No weather is too bad to keep it indoors. Get in"

I did so. He had the tires of the rear wheels wrapped around with chains so as to keep them from slipping. Well, it would surprise you to see how we did spoil those snowdrifts. He dodged like an old experienced chauffeur between trucks and street-



SALISBURY AT WORK IN HIS OFFICE.

cars in a way that made the hair of an old driver of this kind of vehicle stand on end.

"My goodness, Salisbury! you just barely missed that heavy truck-wheel. I should not dare do it."

"Pshaw!" said he; "I do it every day."

"All right," I said; "I can stand it if *you* can. But say, Frank, how long have you had an autmobile?"

"About six months. Don't you remember writing me, *ordering* me to get a machine? You see I obeyed orders."

Then I remembered that, several months before, Mr. Salisbury wrote that the heavy business he was having was wearing on his health, and that he was getting nearly tired out. In a joking way I ordered him to get an auto instanter and make some spins outdoors, never suspecting I could get a bachelor like him interested to the extent that he would carry out my instructions to the letter. He went right up to the garage of the Olds machine, for I had said that was a good one, and gave an order. To make a long story short, he got one of the latest machines, and here he had been driving it some six months, without any trouble with it whatever.

"How did that happen?" I said.

"Why, you told me to study the book, and I did."

He tinkered and fussed with it until he came to understand its mechanism throughout; and instead of waiting until something was out of order on the road, he saw to it that every time he started out it was in proper condition; and the result was, whenever *he* was ready to go, *it* was. He had been using it in all kinds of weather, both for pleasure and business. He could go down to the city or to the depots or express offices in about half the time it took him to go on the street-cars. On a rush order he could take small packages with him, deliver them at the express office, go to the bank, and do various errands, in a time that would leave the old way clear in the shade.

"Look here, Frank," I said, as we approached his house; "you do not propose to go up that hill in all this snow, do you?"

"Why, sure."

Mr. Salisbury's large warehouse is up on one of those Syracuse hills. He applied the power, and the little machine walked up it as if it had a good deal of reserve power left. He ran it into his auto-shed, shut it, and we went into the house. There was no horse to put out, no climbing up a loft to shove down hay; no oats to feed, no water to carry, no stable to clean. It was down to zero, but the cooling-coils of the machine had been supplied with salt water to prevent bursting the pipes. Before he went into the auto-house I asked him to let me take a photo of him just as we came in; and there he is, you see, knee-deep in the snow.

But our friend Salisbury, besides being an expert bee-keeper, is a genius in several respects. He is a rapid calculator; and one of his diversions is to take a complicated set of figures, either in multiplication or addition, and give the result in a twinkling. He loves machinery, and that is why the automobile was to him what water is to a duck. You will see he has a wind-

HOW SALISBURY NAVIGATES THE SNOW WITH HIS AUTOMOBILE.

mill on top of his warehouse, in one of the photos here shown.

"What is that for?" I asked.

"That is to run my elevator."

"Run an elevator!" I exclaimed; "what do you do when the wind does not blow?"

"I have got that fixed, or will have very soon."

He went inside and showed me a sort of grain-elevator which he had rigged up to carry sand from the basement clear into the fourth story of the warehouse. The sand is dropped in a large bin, and he has a connection by means of a rope so that 100 lbs. or so of sand can be dropped into a counter-weight box at any point where the elevator may be located. The elevator is so balanced that, when this box is empty, it will go down by its own weight. When he desires to carry a load he pulls the little rope, and that lets a quantity of sand run into the counter-weight box until the elevator load is counterbalanced. The brake is released, when the load, man and all, is carried automatically to the desired point, when the brakes are applied and the load taken off. When he is ready to go down, the same rope empties the sand out of the counter-weight box, and, of course, the elevator drops of its own gravity. Whenever the wind blows it stores enough sand in half an hour to run the elevator for a day's use.

"Why don't you use water?"

"It freezes in my warehouse," said he. "I had to have something that would not freeze—don't you see?"

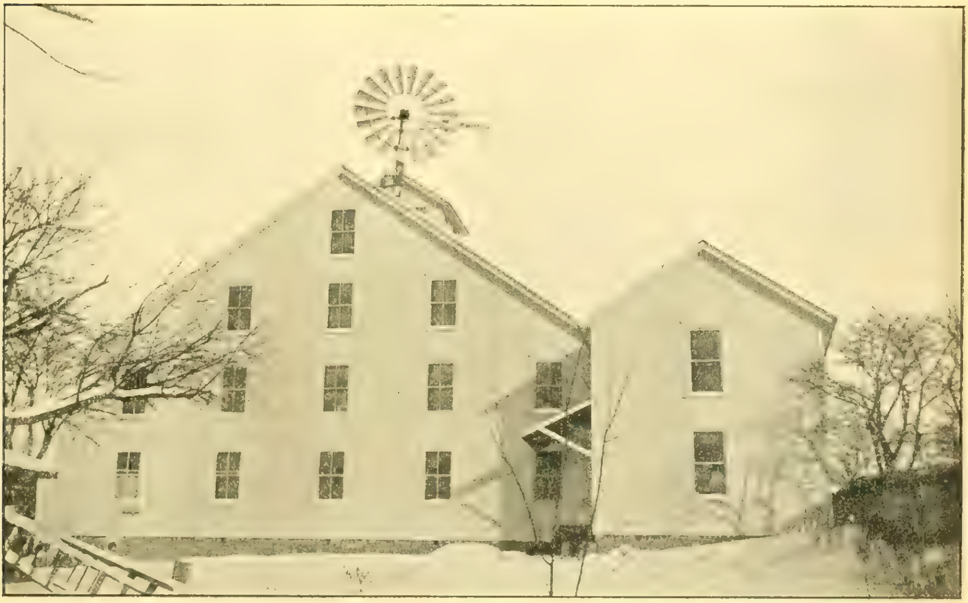
Mr. Salisbury did have at one time the elevator rigged direct to the windmill; but he contrived to do most of the lifting when the wind blew; but when business was pressing it was very annoying to be without power. Now he stores his power whenever the wind blows, in a large bin in the fourth story, and lets it out by pulling a rope just as he wants it. When I was there the rig was not in operation; but I have since heard from him, saying it was coming out all right.

"But, Salisbury, this must have cost you a whole lot of thinking; and wouldn't it have been cheaper for you to have an electric motor so that you could 'turn on the juice' whenever you desired to operate the elevator?"

"Yes, but that would affect my insurance; besides, the cost of the current would be something. Sand will not freeze, the mill works for nothing and boards itself, and will not set any thing afire."

Another of Mr. Salisbury's hobbies is electricity and steam heating. He is planning to make a storage battery to run the lights at the house. The windmill will run a generator that will store a current in the aforesaid battery.

Mr. Salisbury told me the size of his building, and how many carloads he could store away and have ready so that he could pick out any package, but I have forgotten the figures. The rooms are divided into alleyways, and goods of a kind are kept by themselves. Instead of having goods piled on top of themselves, and mixed up, requiring handling four or five times before they are actually given to the drayman, they are handled but once after being placed on the floor.



SALISBURY'S WAREHOUSE WHERE HE KEEPS HIS LARGE STOCK OF BEE-SUPPLIES.
(View from the house.)

Let us take a peep at his office. There he is, sitting down at his desk busy at work. The room is heated with a steam coil, the pipe running from his dwelling, some hundred feet or more, under ground. He has all the modern office conveniences, and sometimes has a pretty stenographer to help him out (he did not have one when I was there); and that reminds me that our friend is a bachelor. He is a good fellow, is honest, well fixed financially, and a real genius. Mr. Salisbury objected to having his picture taken; but kodak fiends are relentless, you know; but finally, after all sorts of persuasion and threats had been hurled at him, he sat still while my kodak clicked from a near-by desk. We then went out of doors and took some pictures of his warehouse.

"But, say, Mr. Salisbury, where is that immense house-apiary that you had the last time I was here?"

"Torn it down."

"What for?"

"Bees died too much in winter in it. Say," he said, looking at me, "I wish you would take that picture of that house-apiary of mine out of the next edition of your A B C book. I am afraid some other man will be fool enough to make one like it, and then blame me."

I said that friend Salisbury is a bachelor. I purposely emphasized the fact; but he is to be pardoned, for he has one of the most delightful mothers that any man ever had. Then he has a married sister across the way, just as good, so that he does not lack the training that naturally comes from one of the gentler sex. My friend may not thank me for saying so much about his family history; but I can assure him I do not mean him any harm. I am only thinking that *some* time I can wish him more joy and happiness. If our bee keeping sisters *only knew* what a whole-souled fellow he is — well, I will not complete the sentence. I may get into trouble as it is.

SCIENTIFIC NAMES.

Rules Governing their Use and Application; Apis Mellifera Linn. the Correct Term.

BY PROF. FRANK BENTON.

In Gleanings, Vol. XXXII., No. 1, for Jan. 1, 1904, the question is raised, on page 11, whether *Apis mellifica* or *Apis mellifera* is the proper term to use as the scientific name of the honey-bee. The editorial comment is as follows:

> *Apis mellifica* is the term used by Cowan and Cheshire in referring to the honey-bee, and by Prof. Comstock, of Cornell, in a recent work on entomology. The same term is also recognized by the great Century Dictionary, the International, and the Standard. The only authority that I have run across so far that uses *Apis mellifera* in a late work is Prof. Cook I can not now find Benton's work; but my impression is he uses *Apis mellifica.* Either is right, but the first is more common.

As my own book (Bulletin No. 1, n. s., Division of Entomology, "The Honey Bee,") was the first work on apiculture, so far as I am aware, to use the term *Apis mellifera*, I may be allowed to explain the matter.

Regular rules adopted by the international zoological and botanical societies govern the giving of scientific names to an-

SALISBURY'S WAREHOUSE. VIEW FROM THE STREET.

imals and plants, and the retention of such names. These rules relating to the names of animals (including, of course, insects) are known as the "Canons of Zoological Nomenclature;" and all recognized authorities in zoology conform in the main to these rules, although in some of the minor points there are differences of interpretation of the rules themselves or of their application. Those of the rules which pertain especially to the case in hand read as follows:

XII. The law of priority begins to be operative at the beginning of zoological nomenclature.

XIII. Zoological nomenclature begins at 1758, the date of the tenth edition of *Systema Naturæ* of Linnæus.

XIV. The adoption of a "statute of limitation" in modification of the *lex prioritatis* is impracticable and inadmissible.

XV. The law of priority is to be rigidly enforced in respect to all generic, specific, and subspecific names.

Whenever a worker in the field of zoological science discovers a form of animal life which differs in some essential particular from all other known forms, and which, therefore, can not be recognized by comparison with any published description as a certain genus or species, he is entitled to give the new group a family name, a generic name, or a specific name, as the case may warrant. His own surname is always attached, then, to the name of the group in question as the original describer of the group and the authority for the name. The first specimen thus described is known as the *type* specimen. Actual publication (putting in print) of the name with such a technical description of the object as will enable others to recognize and determine exactly the family, genus, and species of a similar specimen, is the only proof which is accepted of the right of the name to remain. It is expected that a student of a given group of plants or animals will familiarize himself with all of the species that have been described in that group, or at least with all that are likely to come within his range. But some specialists, less industrious than others, do not take the time and trouble to look up all of the described species of a group. They simply name and describe whatever seems new to them. Thus the science is encumbered with synonyms which, sooner or later, must give place to the earlier-published names when some careful investigator points out these. (See Rule XV. above.)

Now, it happened that the great Swedish naturalist, Linnæus, described the honey-bee in 1761 under the name *Apis mellifica*, and published this description. All down through the years writers have used this term, although some at different periods endeavored to introduce a change. The name *mellifica* prevailed, however, in the main, although the modern rules for scientific nomenclature were not formulated (or at least not adopted) till the congress of botanists, held in Paris in 1867; and their more definite form now governing in this country was not adopted until 1886. But in 1896 an indefatigable worker in the field of insect life, Prof. K. W. von Dalla Torre, of Austria, published a catalog of the known *Apidæ*, or bee family, this being Vol. X. of his great work, "Catalogus Hymenoptorum." Dr. von Dalla Torre had unearthed in an old volume an earlier description of the honey-bee than that published under the name *Apis mellifica* by Linnæus in 1761. Oddly enough, the older name and description were by Linnæus himself in the tenth edition of his *Systema Naturæ*, 1758. Here the name *Apis mellifera* was given.

Considering the vast field covered by Linnæus, and the great number of scientific names which he bestowed upon plants and animals in his work of bringing order out of the existing chaos of scientific nomenclature, it would not have been surprising had he, three years later, overlooked the fact that he had already named and described the honey-bee. I do not know, however, that any testimony bearing on this point exists. What seems more likely is that Linnæus merely desired to change the name because he had come to the conclusion that *mellifica* (honey maker) would be more appropriate than *mellifera* (honey-bearer). No law of zoologists interfered then with such a change. It was merely a question as to whether scientific writers would adopt it or not.

But under the present rules of zoological nomenclature which are quoted above, it is plain that the name published in 1761 had to give way for the earlier-published name, *mellifera*. It is equally plain (Rules XII. and XIII.) that no older synonym, even though a hundred might be found, could now or hereafter replace the name *mellifera*. As a matter of fact, a dozen or more writers (Aldrovandi, Moufet, Swammerdam, Réaumur, etc.) had used the name *mellifera* for the honey-bee before 1758; but Rule XIII. bars the name of each and every one of them from standing now as the authority for the specific name *mellifera*.

It is further seen that the change from *mellifica* to *mellifera* was not one adopted arbitrarily nor at the whim of any person, but that the present name is one which takes its place as the result of the application of rules now universally recognized — rules which were adopted only after most careful consideration and criticism by the foremost biologists of the world. As such it must and will be generally accepted whenever known.

For my own part I prefer the specific name *mellifica*, believing, as I do, that bees do really *make* honey; for surely the product when they have finished their work is very different from the raw nectar carried into the hives. The carrying or bearing is but incidental to the process of making the honey and securing it for their stores. However, this is not a matter which is decided by fashion, individual taste, nor precedent as to present usage. The settled rule makes it clear for all, and but one of the two terms can be correct. Cowan and Cheshire, cited by the editor of GLEANINGS, wrote their works on apiculture before Dalla Torre pointed out the earlier name and description. Prof. Comstock and the authors of the terms in the dictionaries had not happened to notice the change, or else they had not looked into the reasons for it. A comparison of the facts just mentioned, with the laws of nomenclature quoted above, shows that we have no other way than to accept as valid the name *Apis mellifera*. And actually we find that specialists in hymenoptera, both in this country and in Europe, who have occasion to mention the honey-bee by its scientific name, use the term *mellifera* and not *mellifica*.

After a careful examination of this subject I adopted the scientific name *mellifera* in the third edition of my "Manual," which appeared in the early part of 1899, and a brief statement of the reason was given by me in the *American Bee Journal* for July 20, 1899, page 456, and also in the *American Bee-keeper* for July, 1899, page 128. A year or so later Prof. A. J. Cook, when revising his "Bee-keepers' Guide," for an edition which appeared in 1900 or 1901, wrote to this Department to learn our reasons for the change in the scientific name of the honey-bee. The matter was referred to me, and I gave a full explanation with the references to the publications. This information he made, later, the basis of an extended article on the subject, which was published in the *American Bee Journal* for June 13, 1901, page 372. Prof. Cook also adopted the name *mellifera* in the next edition of his book.

U. S. Dept. of Agriculture,
Washington, D. C., Jan. 22, 1904.

SECTIONAL BROOD-CHAMBERS OR SHALLOW HIVES.

Methods of Management.

BY ARTHUR C. MILLER.

On page 23 Mr. F. Greiner writes on the *sectional-brood-chamber* hive. The editor follows with a footnote on *shallow hives*. This is confusing.

A sectional-brood-chamber hive may have two or more sections, and may have frames of any depth. It is the habitual use of two or more chambers that is concerned, not the depths thereof. In practice it has been found best to use sections about 5½ inches deep. In "shallow" hives, so called, 7½ inches seems to be the limit, and with such but one chamber is, as a rule, used for the brood-nest. Because two of these *may* be used does not necessarily make it a "sectional-brood-chamber" hive as that term is understood by the advocates of them.

Mr. Greiner is usually so very thorough and careful that I felt sure he must have discovered some vital defect in sectional hives; but on careful perusal of his article I was surprised to find that the fault seems to lie with him.

Certain general methods of management are in use with all single-chambered movable-comb hives of whatever depth. To reap the advantages of such hives over the ancient boxes, we found it necessary to devise and use some such methods. Mr. Heddon leading, and others following, believed that these methods involved too much labor and took too much time. To lessen these difficulties Mr. Heddon devised his sectional hive and *evolved a system for it*.

With the sectional hive it is a system of manipulation of "chambers" or "sections." With other hives it is a system of manipulation of combs—two radically different things. With sectional hives, combs are *not* to be removed except in rare instances (as in looking for disease or for study). With other hives the comb is the unit of manipulation. Mr. Greiner, in common with many others, has mixed the two systems, trying to manipulate combs in sectional hives. The result is, of course, disastrous to his hopes and enthusiasm.

Sectional hives were devised to minimize manipulation; to save time; to reach ends quicker or more perfectly than was possible with other hives. But there are sectional hives and sectional hives. Some are good, some are bad. Some fulfill most requirements, others are almost useless. The important factors are:

1. All chambers must be perfectly interchangeable.
2. All frames must be securely held in those chambers.
3. Top and bottom bars of frames must be of such width and thickness as to offer as little obstruction as possible.
4. A desirable though not essential feature is having supers of same size as a brood-section.

The three first of these were embodied in Mr. Heddon's hive. Unfortunately the close-fitting frames in his cases are not adapted to many parts of our country where excessive dampness so swells the frames as to force the sides asunder. More room between the frames and the case, and some form of yielding clamp (instead of the set-screws) are necessary. There are many ways these ends may be reached; but which are the best, only time will determine.

Granted a suitably constructed sectional hive, it may be asked wherein we are to secure any material advance over the use of single-chamber hives. First and chief of all, we must acquire the ability to diagnose the conditions of colonies from views of top, bottom, and middle. This is not difficult, but takes a little time to learn. It is also important to learn to "size up" a queen by the external appearances of the colony. Another valuable matter is to learn to get the queen without removing the combs. There are several ways in which this may be accomplished. Often she may be driven on top of the combs of one section or the other by the judicious use of a little smoke. By separating the hive sections the bees will quickly tell us which one is without the queen, then the bees may be shaken out and the queen readily found; and it is by no means necessary to shake out all of the bees, as, often, the first jolt will bring the queen. But it is by no means essential to find the queen as often as some apiarists do.

"Shaking out" bees sounds hard, and is hard; but "jouncing out" is easy and simple. Rambler's "jouncer" is excellent, but not a necessity. By holding a case a foot from the ground, and dropping one end against the turf, and instantly lifting that end and dropping the other, a greater part of the bees will be dislodged. Of course, this would not do with a case of new combs heavy with honey; but these seldom require jouncing. I have, however, used the bumping process safely with cases of honey in sections.

Vitally associated with *all* hives is a factor seldom if ever mentioned, and it is doubly important in using sectional hives. It is the strain or race of bees. Queens of some will pay small heed to frame bars or spaces, while others are stopped by the slightest irregularities. It may be taken as an axiom that a hive is relatively large or small, not so much by its cubical dimensions as by the *character* of the colony contained therein.

An apiarist in selecting a hive needs also to consider the nature of the nectar resources of his locality; i. e., one flow or several, quick or slow. The size of hive which suits Mr. Morrison does not suit Mr. Greiner. Management suited to Mr. M.'s locality has to be modified to fit Mr. G.'s.

As to drones, I can not see that the rearing of a few is of any material harm to the colony. To be sure, it costs something in bee energy and food; but who can say how much more is lost by trying to prevent entirely all such production? With sectional hives we can reduce the drone comb to a few square inches in one frame of each chamber, where it will remain almost indefinitely. With the movable-comb systems, we some days find several such combs assembled in one hive.

Queen-excluding honey-boards are by no means necessary, though often very convenient.

It is a debatable question whether or not more honey can be secured (under any and all conditions) with a sectional hive than with the single-chamber type; but I believe it is beyond dispute that, in sectional hives at least, equal results can be accomplished with much less labor, and that the bees are more completely under the control of the apiarist.

Remember "sectional hives," "sectional system," "single-chamber hives," "single-chamber system." Don't mix the systems any more than you would the hives.

Providence, R. I., Jan. 12.

[When Mr. Heddon first introduced his sectional-brood-chamber hive in 1885 he (or possibly Mr. Hutchinson) drew a sharp distinction between shallow hives and sectional brood-chambers; but as there were so many depths, and the methods of management for either were more or less diverse, it became almost impossible to carry out the distinction; and, to avoid confusion, the two terms were allowed to pass for one and the same thing. While, technically, there is a distinction, the public has not recognized it.—Ed.]

SOME COMMENTS ON LATE ITEMS.

Home-made Hives; Frames Supported on Nails; Modern Queen-rearing; Drone Comb in Shaken Swarms.

BY E. F. ATWATER.

Gleanings for Dec. 15 is at hand; and in reading it I see several points about which I feel tempted to say a word.

In regard to Dr. Miller's Straw, p. 1040, in localities where lumber is very high in price, and bee-supply factories near, I suppose it is true that it would be a losing venture to make one's own hives. However, in localities where a good quality of lumber may be bought for $20 per 1000, it may pay to manufacture them at home. One of our local planing-mills has excellent machinery for the purpose — fine-tooth saws and iron-top tables. They have a large amount of short pieces of various lengths and widths, left from other work, and from these my hives are cut at a very substantial saving.

Doolittle's "conversation," p. 1042, will surely give the novice, in the great majority of locations, expectations which can never be realized. While Mr. D. has secured an average net income of $1045 per annum from an average of 75 colonies, spring count, for the past 28 years, yet I am safe in saying that, in very many localities, one would need at least five times that number of colonies to secure such an average income.

"Frames supported on nails," page 1044. Mr. Geo. E. Dudley, of this State, uses such frames, and credits the idea to the late B. Taylor. They are closed-end frames, 17⅝×9⅛, with a bee-space around the ends the same as the regular L. I have on hand 2000 shallow unspaced frames, hanging on nails, for use next season.

"Honey-plants of Arizona," p. 1046, "a can of honey (60 lbs.) to the ton of hay." If that could be realized in this locality I might expect as large profits as Mr. Doolittle.

"Modern Queen-rearing," p. 1049. When I rear queen-cells in a divided brood-chamber the bees often start to supersede their queen, seeming to think that she is responsible for the restricted egg-laying, which results from confining her to two or three frames. Instead of changing the queen from one compartment to another I keep her on one side, and supply frames of hatching brood from other colonies, to the side where the cells are being built. By this plan there are never very many unsealed larvæ in the hive at any time, and always an immense force of nurses, eager to build queen-cells and feed larvæ. By keeping a best breeder on one side, on two or three frames, the larvæ will be superabundantly fed with the larval food, and very easily transferred.

"Drone comb in shaken swarms," page 1055. Mr. Gill's method of making forced swarms is very good indeed (I say this because I use the same method with good results). But, really, Mr. Morrison's "little half-story," with full sheets of foundation, may be used with splendid results where one wants nearly all the honey in the supers, as I *know* from an extensive trial. Put such a big swarm in a shallow case, with abundant super room, and they will very often swarm out. Hive them in two cases, with abundant super-room, and they will stay. They will almost invariably build comb and rear brood (while storing in the supers) in the upper case only, for the first week, so at the next trip to the yard the lower case is removed. Of course, they will then occupy and fill more supers than they would if they had been hived in a full-depth eight-frame hive.

At one yard there was a shortage of shallow cases having but one for each swarm. There was a lot of rims of light stuff, four inches deep, used to hold chaff cushions; so when hiving the forced swarms I put one of these empty rims under each shallow case. At the next trip every swarm was found doing good work, and the light rims removed.

Boise, Ida.

Heads of Grain
from different fields

PUTTING SWARMS BACK ON COMBS INSTEAD OF FOUNDATION.

I have been studying on the different plans given in these columns for putting back swarms. I want to try the plan next summer of letting the bees swarm out, and then taking away four of the middle frames of brood. Instead of putting back four frames of foundation, would it do just as well to use frames of comb? I have lots of them. Another question is this: If a queen gets into the habit of having a small brood-nest the first summer, is she supposed to be of any use after that? Some hives seem to have queens whose bees are allowed to fill the brood-nest too full of honey.

Farris, Wash. **Anita A. Byers.**

[This was referred to Dr. Miller, who replies:]

Combs will answer as well as foundation in carrying out your treatment of swarms.

Restricting a queen as to laying in her first summer is not likely to make any appreciable difference in her second summer's work.

Having answered the questions asked, let me answer one you haven't asked, by saying how your proposed treatment of swarms is likely to succeed. Swarming will be delayed, and in some cases prevented entirely, by taking away four frames of brood or less before preparations for swarming have proceeded too far; and the nearer to completion those preparations, the more difficult to persuade the bees to give up all thought of swarming. When preparations are completed, and they have actually proceeded to the act of swarming, no light thing will dissuade them; and after the removal of four frames of brood you may pretty safely count on their swarming out again.

C. C. Miller.

QUEENS THAT DO BETTER WORK THE SECOND SEASON.

The queen I got from you two years ago last June did very poorly the first summer. but the second summer she did a good deal better. **Geo. F. Leslie.**

Edgecliff, Pa.

[Friend L., this sometimes happens, but I think not often enough, as a rule, to pay trying a queen that makes a poor record the first season. Of course, we want to be sure she has a good chance — plenty of bees to start with, and every thing favorable. I have sometimes kept queens for special reasons through a second season, even though they would not seem to be able to produce the usual amount of brood the first year; and I remember a few cases where they seemed to be better the second year * We keep imported queens usually as long as they live, even though they sometimes get so old as to lay only a few eggs — that is, where the queen has been a valuable one, and we want her eggs for rearing stock. It has been suggested that very prolific queens sometimes exhaust themselves the first season, but I have not been able to find any such. The queen that produces a tremendous lot of bees the first summer will be very likely to do the same thing, or nearly the same thing, the summer after.—A. I. R.]

FLAT COVERS OF CALIFORNIA REDWOOD.

Referring to covers for hives, page 1044, you say, "The fact is, clear wide boards in sufficient quantities to care for the trade for such covers can not be bought at any price." I suppose you mean pine lumber that wide can not be procured; but I am using flat covers made of California redwood, and I buy it at retail for 6 cents a foot, which is the same price I would have to pay for clear pine 12 inches or over in width.

I can buy redwood from 10 to 24 feet long, and 4 to 24 inches wide, all clear, and dressed both sides, at the price mentioned. Our lumber-dealer tells me it will not shrink, swell, warp, check, nor rot after it is thoroughly seasoned. I use the ten-frame Dovetailed hive, and have to buy boards 18 inches wide, as the redwood is all cut to vary two inches in width. I used some for covers during the past summer, and they are on the hives at present on the winter stands, and they are as good as when new. I nail a piece of ¾-inch hoop iron across the end with 2-penny fine wire nails nailed about two inches apart on opposite edges (but I think a channel iron as used on your new Danzenbaker nailless cover would be better), and give them three coats of good paint. L. M. GILBERT.

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* Not very long ago friend Doolittle mentioned in the *American Bee Journal* a queen that was condemned the first season; but the next year she proved to be the best queen the man ever owned.

Naperville, Ill.

[Yes, I was referring to pine, and in this section the redwood would be even more expensive. But a cover of lumber costing 6 cts. per foot is rather expensive. If we had to furnish covers for our trade costing this figure the price on hives would have to be advanced higher still.

Redwood is a fine timber, and will warp and twist as little as any lumber known. I have seen many such covers in use in California and Arizona; but let me advise you to cleat your covers at each end. The strap iron, such as you describe, would hardly be rigid enough.—ED.]

CAGING QUEENS TO PREVENT SWARMING.

I intend to cage some of my queens this summer, to prevent swarming. Let me know what sort of cage is needed, if any candy is needed, and how long she must be caged. Do any of the big-honey producers cage their queens? What do you think of it? SUBSCRIBER.

Manhasset, L. I., Dec. 27.

[Any kind of cage that will permit of a small supply of soft sugar candy will be suitable for caging the queen. While the candy is not absolutely necessary, perhaps, it is advisable to have it where the *queen* can get to it but not the *bees*.

I do not know of any large honey-producers who are practicing the method unless it is P. H. Elwood, of Starkville, N. Y. We tried it, but thought it discouraged the working energy of the bees.—ED.]

PRICE FOR HELP IN THE APIARY.

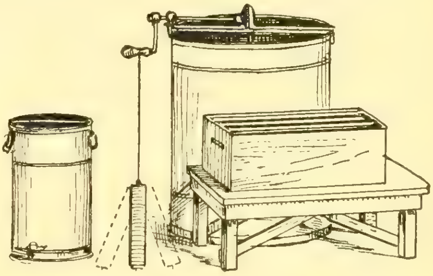
If a man has several colonies of bees on his farm, and desires an experienced apiarist to take charge of and manage them for the season, what condition or terms would be considered right to both the parties? W. H. KERR.

Crawfordsville, Ind., Dec. 1, 1903.

[The price for bee-help will depend a great deal on the price of labor in your vicinity. You may have to pay all the way from $1.50 to $2.50 a day; but if you have only a few colonies it would not pay to have hired help. But perhaps you refer to keeping bees on shares. If so, the rule is for one party to furnish the bees and all the supplies except the sections, and receive all of the increase and half the honey and wax; and the other party is to have his half of the honey and wax, but not the increase.—ED.]

HONEY-EXTRACTOR DRIVEN BY FOOT POWER; A GOOD IDEA.

I take pleasure in showing a kink which saved me one hand or one whole helper, for that matter. The sketch shows the arrangement. The comb-box is at the right hand, and the uncapping-can at the left, and a little in front. I uncap two combs and place them in the extractor; start the crank with the hand, then work the treadle. While doing this I take another comb, uncap, and place it in the comb-box. I now turn the frames in the machine, start it agoing again, and take another frame; uncap, and exchange the combs, and proceed as before. When one foot gets tired I push the treadle to the dotted lines, and use the other. There is no change of position except to turn the arms and shoulders from right to left, and reach ahead to the extractor—no stooping. A two-frame extractor of the Novice type runs very easily. The treadle is 1×2½ in. by 3 long, with a piece of broom wire to the crank. Whenever you wish to turn by hand you can do so any minute.



To make a brush, cut a ⅜ rope 9 in. long; unravel, and lay out flat. Nail two sticks, one on each side, and bring the other ends close together for a handle. It is ahead of any thing for me. I learned how to make brush from a man by the name of Crow. If nails are driven about 1¼ in. apart, so the points will about come together, you will have the stiffness as well as the friction to hold the rope strands.

I have made about 100 hives by nailing—no halving, mitering, nor dovetailing. I have used these three or four years, and not one has given way. Of course, most people will buy their hives, and they can be dovetailed cheaply with machinery.

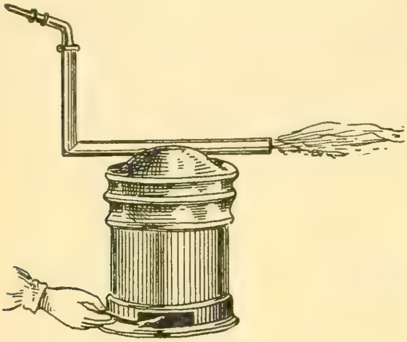
Pittsville, Wis. A. B. WHITE.

[Your foot power and general system of extracting are very good; and on the small light-running non-reversing extractors it will do very well.

The method of making the brush is something that has been in use for a good many years. It is good, however.—ED.]

A COLD-BLAST GERMAN SMOKER.

Smokers seem to form an important feature in America. The smoker I like best of all is the one invented by bee-master Dathe, in Germany. It is something like a pipe, and must be held with the teeth. The top part can be opened, and the pipe may be filled with dry stuff. I always use very cheap tobacco. By blowing in the mouthpiece, and holding a match under the pipe, the stuff begins to burn. The advantage of this pipe is that both the hands are kept free for working, and a puff of smoke can be given just when and where it is needed, without stopping the work. The pipe is made of brass or tin. C. KNEPPELHOUT.



Driebergen, Holland, Dec. 30, 1903.

[This smoker embodies the well-known principle of the atomizers found at the drugstores, and is, therefore, in effect a cold-blast smoker in that it creates a vacuum near the nozzle, causing the smoke to be sucked from the burning fuel, and to be blown out through the nozzle. These mouth smokers have never been very popular in this country.—ED.]

GOOD WINTERING IN A CELLAR WITH A FURNACE; HOW IT WAS DONE.

I am much interested in wintering bees in a cellar with a furnace. I had a furnace in my cellar for several years until last season. Did I have the courage to try to winter bees in such a place? The main part of my cellar where the furnace is, is 20×20; then there is an L 9×14. This I partitioned off by setting 2×4's up on end and siding up on both sides. This left a space of 4 inches which I packed with sawdust. This is a non-conductor of heat. I have a door through this partition, connecting the two cellars. I have a north window and outside door in this "cold storage," as I call it. In this room I have all my vegetables for winter use. Last winter I placed 22 colonies of bees in this storage place—the lightest I could pick out. I kept this place as near 45 degrees as possible by opening the window. If it got too cold I opened the door, letting in some heat. Now, how did the bees come out? Just perfectly clean, and as sweet as when put in. When I set them out they spotted but little. I don't think they consumed over 3 lbs. each while in the cellar. Now, I have over 30 in test this winter; and, say—what a fine place to keep vegetables! This could be kept nearly at the freezing-point.

If any one having a furnace in his cellar will partition it off with a sawdust packing, he will find it all right. I could not see that fresh air from the windows did any hurt so long as it was dark. I darken the window from the outside.

Jackson, Mich. W. D. SOPER.

[Your arrangement is ideal, providing you can keep the temperature from going too high. The furnace offers one advantage in that it enables one to raise the temperature when it is too low.—ED.]

MAPLE SUGAR AS A BEE-FEED.

Can you tell me whether it was ever tried to feed bees with maple sugar, and whether this same sugar is good for a stimulant?

Gilpin, Md. H. S. KRUMLINE.

[Syrup made of maple sugar or maple molasses has been given the bees a good many times. Unless the sugar is of very poor quality it would be cheaper to use regular granulated sugar, from which a more wholesome syrup could be secured. We have used maple-sugar cakes of poor quality, putting the same on top of the frames, to stimulate the bees in the spring, but we do not advise it as a midwinter food, as it would be liable to bring on dysentery before spring.—ED.]

SHALL BEES BE ALLOWED TO HAVE WINTER FLIGHTS WHEN SNOW IS ON THE GROUND?

I should like to know if it would be necessary to block up the entrance of a hive when the ground is covered with snow on a warm day, when the bees fly out on the snow and die. My entrance is about 4×½ inch. This morning I put a piece of wood half way across the entrance, and this noon they have been flying out and falling on the snow. I have now got the entrance up with wire netting. C. WUETIG.

Blue Island, Ill.

[It is a little difficult to answer your question as you put it. As a general thing we may say that a midwinter flight for bees is beneficial—especially so if their abdomens have become distended with fecal matter. There are times when I have been satisfied that it would have been better to have the entrances entirely closed, for sometimes the sunlight will induce bees to fly out in an atmosphere just a little too chilly for them to get back. The consequence is, thousands and thousands of them rush out into the sunshine, and, becoming chilled, they alight on the hives, and even in the snow, where they perish. If the entrance is shut at all it had better be closed with snow rather than with wire cloth. I think

we may conclude this: After the bees have had their first flight it would be better to keep them in, especially if the air is chilly; but if it is quite warm, a flight will do no harm, but, rather, good.—Ed.]

REPORTS ENCOURAGING

I started in the spring with 12 colonies; bought 25 more in box stands; transferred them and increased to 60, and took over 6000 lbs. of honey. This is my third year with modern hives. J. C. Peterson.
Devine, Tex., Feb. 4.

A GOOD IOWA REPORT FROM AN OLD FRIEND.

From 108 I increased to 210, and took 13.703 lbs. surplus, or about 127 lbs. per colony, spring count, which we consider good for Central Iowa.
Colo, Ia., Feb. 15. D. E. Lhommedieu.

ONLY ONE FAILURE IN 24 YEARS.

I have 100 colonies in the cellar, mostly in Quinby hives. I started with such, and have done well. I never missed a paying crop but one in 24 years, I don't run after fads, nor change for every thing new that I see, even if I see it in Gleanings.
Springfield, Ont., Jan. 24. John Yoder.

FROM 35 COLONIES 3000 LBS.

My report is 3000 lbs. from 35 colonies. One swarm, hived late in June, made 147 lbs. comb honey, and had plenty of stores for winter. My hives that had not swarmed for six years cast swarms Some went back and went to work with a rush. Bees are wintering well. Wm. G. Snodgrass.
Montrose, Mo., Feb. 12.

FROM 24 COLONIES (4 QUEENLESS) TO 37, AND 1645 LBS. OF HONEY.

I had 20 colonies with laying queen, and four without, this spring. I increased to 37, and had 1045 lbs. of comb, 600 lbs. extracted. I think that was good for this cold season. It was gathered in June and ten days in July. No fall honey here
Benzonia, Mich., Feb. 8. James E. Harwood.

REPORT FOR 1903.

From 25 colonies (most of them not much better than nuclei), spring count, I have sold and given away to date, as follows: 2142 lbs bulk comb; 1764 lbs. extracted; 93 4x5 sections of honey; 37½ lbs. of beeswax; 24 nuclei (with queens), and five queens. I now have left 32 colonies (nearly all of them in good order), and a little honey still unsold. M. A. Salazar.
Cotulla, Tex., Feb. 2.

FROM 60 TO 125, AND 8514 LBS. OF COMB HONEY.

May 1 I had 60 colonies, but three of them were queenless, and some of the others were weak. Then I increased them during the season to 125, and received 8850 sections of finished section comb honey, or 8514 lbs. The hives are all eight-frame Dovetailed, with all the frames wired, and full sheets of foundation in every one. The supers all take the plain 4¼ section. I keep all queens clipped, and replace when two years old, unless extra good. I am very well pleased with your make of hives. I send you a photograph of my honey. John R. Millard.
Knoxville, Ia., Jan. 18.

[The photo mentioned shows a lot of beautiful honey that might make any bee-keeper's heart glad, stacked up in neat cases and nice square piles clear to the ceiling of a very nice and tidy honey-room. If the picture had not been too dark I should have been glad to give it to our readers.—A. I. R]

FROM 6 TO 20, AND ONE TON OF HONEY.

I started in last spring with six colonies of Carniolans; took one ton of extracted alfalfa honey, with an increase to 23 colonies. Bees are now all in first-class condition, in Simplicity 8-frame hives, with only oilcloth under the covers. Lowest, 10 degrees below; average about zero for January at daylight, but bees had a fly almost daily. Plenty of fine land yet open for homesteading here.

Italian bees will probably do nearly as well if they do not swarm too much. S. W. Morrison.
Ignacio, Col., Feb. 6.

A SCHOOL MA'AM'S REPORT.

My mother, who is now 80 years of age, thoroughly enjoys reading your Home Talks, and Notes of Travel, as well as the articles on bees and honey.

About 17 years ago a runaway swarm of bees clustered on a tree in our yard. We secured the bees in a barrel, but knew nothing about caring for them until we saw a copy of Gleanings. We subscribed and sent for a few eight-frame hives, which are so easily handled that mother's love for bees was increased many fold. We now have nine hives, which are all an old lady of 80 and a school-teacher's daughter can successfully care for. We love our bees, and I must say that they behave remarkably well We are not afraid of them, and they do not seem to fear us Our crop of honey could not be excelled in quality and finds ready sale at 15 cents in the summer and 20 in the winter. Your articles about "the cabin in the woods" have been so interesting that we have often wished we might "step over" and see the cabin, the peach-trees, and that potato-patch.

No publication has ever given my dear mother more real pleasure than Gleanings. Mary Martin.
Petersburg, Ill., Jan. 21.

$101.10 FROM A SINGLE COLONY OF BEES IN ONE SEASON.

I have a wonderful story to tell about keeping bees, and it is a true story, as I can demonstrate by entering into the particulars. I thought at first I would publish it in some of the bee-papers; but upon more mature thought I concluded to wait until I did the thing again; but it was never *done* again, even though I tried it over and over.

I made out of one Italian hive of bees, which cost me nothing (the fellow gave them to me), the enormous sum of $101.10. This may seem to you old bee-men fishy; but I made my own hives; all the outlay I had was for sections, foundation, and a little lumber. Some of it was there for the using.

With just a suggestion or two you may see a little light on the subject First, it was the best honey season I have ever seen—none like it before or since; honey-plants galore, and honey-dew on plant and leaf everywhere. Secondly, I sold every pound of my honey at 10 cents, and kept none. In the fall I sold the bees for $5 00 per hive. Thirdly, they multiplied to nine colonies. The old one sent off three, the first swarm sent out two, the second two, and the third one, making nine in all, which brought $45.00 of it, and the rest was in honey sold. Now, I have the figures for it, and "don't you forget it."

I never had this printed but I did have men who make bee-keeping a business come to see me to know how it was done. Well, it wasn't *done* at all—it just *happened*, though I thought for several years afterward it was done, and I did it; but my later and longer experience taught me it just happened through and by a set of contingent, unusual circumstances and likely never to occur again; at least this is my thought about it now. S. R. Ferguson.
Sumner, Ia., Jan. 18, 1904.

[Friend Ferguson seems to be a little afraid it was unwise to tell this story, as few people will believe it. If he had taken and read the journals for the past forty years, I think he would have found several similar reports—perhaps some larger. There is a valuable point in the story, that has come up many times. Wonderful things may be accomplished by natural swarming during a favorable season. I had one similar experience that was given in the *American Bee Journal* before Gleanings was published. One of the requisites is to have a queen full of vim, and one that will transmit this very vim to her daughters; then let them get the swarming-fever; and, if the honey holds out, this one colony will make a good-sized apiary in one season, and may give you quite a lot of honey besides. When I read father Quinby's first book on bee-keeping in box hives and natural swarming, I felt a strong inclination for a time to run an apiary on just that plan. In the above narration there was a good colony of Italian bees to start with—very likely the young queens proved to be, many of them, or most of them, hybrids; but this would not hurt the final outcome.—A. I. R]

OUR HOMES,

BY A. I. ROOT.

Blessed are ye when men shall revile you and persecute you, and say all manner of evil against you falsely, for my sake.—MATT. 5:11.

When I came back from Northern Michigan last summer I was asked to take a particular class of boys in our Sunday-school; I was also told that those boys, or perhaps I should call them young men, were not a very easy class to manage; and the superintendent said he hoped I would be able to keep them in order, and do them some good, as many of the best teachers had about given them up. In accordance with this I prepared myself carefully with the lesson, and did my very best to get the boys interested in some way, and hold their attention. It kept me pretty busy, but I succeeded rather better than I had reason to expect from what I had heard. They were really a nice lot of young men in many respects, children of well-to-do parents, and pretty well posted on what is going on all over the world; and for several Sundays I really enjoyed teaching the class. When I told them I was sorry I should have to be away again for a month or more, I had one of my pleasant surprises, for two or three expressed regret, and said they wished I could keep the class all the time.

While it is true I was succeeding fairly well with the class, it is *also* true that there was a good deal of disorder and outside talking. The secretary told me the class had had no quarterlies for a long time, because they just tore them up as fast as they were received. They had a lesson-paper each Sunday, but these were usually torn up to make wads to throw at each other.

I presume the average Sunday-school teacher will think, when I confess I allowed more or less of this work to go on, it is somewhat a question whether I was really doing the boys any good. When the class was small, or when the ringleaders were absent, I got along very well; but when the whole ten were present it kept me about as *busy* as any job I ever undertook. I almost began to dread God's holy day. Of course, it set me to praying for the class; but, with scarcely an exception, when the lesson closed I felt happy. The Holy Spirit seemed to say, not exactly, perhaps, "*Well* done, thou good and faithful servant," but it did say to me that I had done fairly well; and I felt happy because I had made the effort. I felt happy because I had reason to think I was gaining the friendship, little by little, of each one of those boys.

During Mrs. Root's sickness, however, I was absent several Sundays; and when I got back I seemed to have lost my grip on the class. I kept thinking each Sunday I would get back; but Satan seemed to have gotten the better of me—*he* had a *better* grip. The class kept getting worse and worse. Now, very likely some of these same young men will read what I am saying here in print. In view of this, may God help me to be "wise as serpents, and harmless as doves." In talking with the superintendent and the pastor of our church in regard to the matter, they both decided I had been too easy with the young men. Let me give you an illustration.

Our church has been recently warmed with steam radiators. There is a very pretty radiator in our class-room. When the class is all on hand, some of the boys are obliged to sit very near this radiator. Our radiators are all equipped with up-to-date automatic air-valves that cost quite a sum of money. We were told the radiators would not be complete without them; but that when thus equipped there need be no shutting and opening of valves to let the air out. These valves are automatic, needing no manipulation or handling. Well, these young men had got into a fashion of meddling with the air-valve. They would twist it one way and then the other, and change the adjustment, etc. First one boy and then the other would be meddling with it. When I mentioned the matter to our pastor he said I ought to insist on prompt obedience in such matters; and that if nothing else would do I should stop the lesson until I had gained obedience, even though it broke up the class. Just once in my life I sent a young man home because he deliberately disobeyed orders in the Sunday-school class; but I have been sorry since then that I did it. He felt very much hurt; and when he was transferred to another class he behaved himself like a gentleman. This would look as if it were the fault of the teacher rather than that of the boy. May God help us, who are trying to teach in our Sunday-schools, to be sure, before we resort to severe measures, that the fault is *not* with the teacher, but with the pupil. Now please, dear friends, do not jump to the conclusion that I would advise a teacher to resign, and conclude that he has no ability, just because he has trouble, or, say, such troubles as I have mentioned.

Yesterday, Feb. 14, my class behaved worse than ever. I finally stopped proceedings, and told them that I feared the class would have to be broken up. Several said, "All right, break it up;" but it had the effect of quieting them for a while. I said something like this:

"Boys, you are my personal friends—at least I believe you are. It will not only be a disgrace to *you* if the class is broken up, but a disgrace to me, because I shall have to admit that I am not equal to the task of keeping order; that I have not a faculty, even with the long years of experience I have had in Sunday-school work, for maintaining discipline. It will also cast a slur on our whole Sunday-school to have it publicly said that there was a class of boys in it that no one could manage. Now, I might send you home one by one because you refuse to obey orders; but I do not want to do that. Whatever I do, I wish to maintain your respect. I am praying that God may help me to hold your confidence and your good will, whatever may happen. Last of all, most of you are *church-members.*

We got along pretty well after that. Usually, before closing a lesson I give the boys a hint of what is going on in the scientific world. One evening I gave them a glimpse of my specimen of radium which I have told you about. On this particular Sunday I said, just before the last bell rang, "Do you know, friends, that two Ohio boys, or young men, rather, have outstripped the world in demonstrating that a *flying-machine* can be constructed without the use of a balloon? During the past few months these two boys have made a machine that actually flew through the air for more than half a mile, carrying one of the boys with it. This young man is not only a credit to our State, but to the whole country and to the *world.*"

"Where do the boys live? What are their names?" said a chorus of voices.

"Their names are Orville and Wilbur Wright, of Dayton, Ohio."

"When and where did their machine fly?"

"Their experiments were made just before winter set in, on the Atlantic coast, at Kitty Hawk, N. C., at a place where there are several miles of soft sand blown up by the wind. They chose that sandy waste so that, in case of an accident, they would not be apt to be severely hurt by falling. For the same reason they managed it so as to keep the machine within five or ten feet of the ground. As soon as we have warm weather they are going on with their experiments. The machine was made something after the fashion of a box kite. A gasoline-engine moved propeller wheels that pulled it against the wind. When they make their next trial I am going to try to be on hand and see the experiment."

This little story seemed to have the effect I expected it would. They seemed to have forgotten the unpleasantness about maintaining order, and I was thanking God that I had been enabled to talk as severely as I did, and yet not arouse any bad or vindictive feelings in their hearts; but as we passed out of the door of our room, however, one of the tallest and brightest of the group said something like this:

"If they take you up in the machine I hope they will let you drop; for we haven't any use for any such 'old thing' around here."

I glanced quickly at the speaker's face to see if it was a bit of pleasantry; but he simply looked hard and sullen, or at least I thought he did. He had been one of the worst offenders *that* day, and he seemed not to have forgotten my severe words after all, even though he had listened intently to what I had to say about the flying-machine. Let me digress a little.

Years ago, at an open-air meeting among a class of toughs, I read to them in the Bible about turning the other cheek also, when somebody hits you a blow. One of the hearers interrupted me by saying, "Mr. Root, if somebody gives you a clip on one side of the head, will you turn the other side and let him hit you again?"

I replied that I would try hard to show that kind of spirit. The reply came quick:

"All right; may be you would; but I should like mightily to see it *tried on.*"

These words have rung in my ears a good many times since then, and it happened perhaps nearly thirty years ago. I have tried to school myself to receive all kinds of clips, and still keep cool and quiet, and not feel mentally troubled or worried. Sometimes I have felt as if it were too much to expect any speck of humanity to render, under all circumstances, good for evil. A few times I have succeeded in looking pleasant and good-natured, even while stinging from a blow, or when inwardly stirred up to fierce rebellion.

On the way home I kept thinking about that unkind fling. It seemed as if there was an almost satanic ingenuity in it. It implied, or at least I thought it did, that I was getting to be too old to undertake to teach a crowd of boys in their teens. Perhaps it was Satan that kept suggesting I had lost interest in boyish sports — that I was getting so well along in years it would be better all around if I should cease even trying to teach any longer. Could it be true I was getting too old to be of any further use among men or among boys? Why, just a week or two ago, our family physician said, when I started on a little run to catch up with the rest of the crowd, "Why, Mr. Root, you run as spry as a boy of sixteen instead of a man over sixty;" and I have prided myself on being as spry, both physically and mentally, and, I *hope,* spiritually, as I ever was. As I pondered on that speech about being too old to be of any further use here in my native town of Medina, I wondered *how many* of that class were of the same opinion. Had the boys been *laughing* at my attempts to control them? May be the *superintendent* thought I was too old to undertake to handle such a class. I told Mrs. Root about it, and she felt hurt too. I did not enjoy running my automobile home from Sunday-school; and during that whole afternoon when I attempted to read, that unkind speech kept haunting me. I told some of our people about it — that is, the grown-up children — the parents of our grandchildren — and *they* were quite indignant. The idea that A. I. Root, who had helped to build up the town of Medina, was of no further use in it, and that it would be a general gain if he could be "dropped out of a flying-machine" or gotten rid of in some other way! As I thought it over it seemed to me as if the sting was greater than if I had been knocked over with a club; but, dear friends, *it did me good.* It set me to praying; and my prayers cleared the sky somewhat, especially when on bended knees I remembered the text at the head of this talk. *Then* I began to receive a blessing. The Holy Spirit reminded me that I was getting to be a little bit proud — proud, perhaps, of my past record and of my ability. I needed humbling, and God knows I *felt* humbled. Then a blessing came. I resolved to see my boys, and have a talk with them. The first one I met admitted, with rather downcast eyes, that I was right and that they were wrong. He said that, in some way, they had gotten into a rut, and it seemed hard to get out of it; and then he gave me a most happy surprise by saying that the tall young man had no thought of applying that cutting remark to myself. There was a mischievous little chap who generally helped along all the merriment going on in the class; and this fellow said, just as they were going out, that *he* would not be afraid to go up in a flying-machine clear up into the air, instead of keeping only ten feet from the ground. Then the tall one replied, and his answer, *to me*, came as he passed me, and, I thought, as he was looking at me. The answer was, "Well, if they do take you up I hope they will let you drop, for we haven't any use for any such 'old thing' around here." But my pride had received a stinging lesson; and while my young friend is fully exonerated I hope the lesson I received may do me as much good as if his remark had in truth been intended for my poor self.

I have had just one other experience lately in being humbled. There are some more strange words in that fifth chapter of Matthew — I mean the ones right after, where we are admonished to "turn the other cheek also." The Savior said, "If any man will sue thee at the law, and take away thy coat, let him have thy cloak also;" and in the 39th verse we read also, "But I say unto you, that ye resist not evil." These admonitions, as I take it, are to brace us up against the temptation to demand continually "our rights," or, in other words, to make a *big* fuss about a *small* injustice. A little difficulty arose about settling up an account. The transaction occured during Mrs. Root's recovery from her recent sickness. She was still weak and rather nervous. We were taking great pains to have every thing quiet around the premises. But this particular business transaction could not well be managed elsewhere just then, and I felt sure, even if she were listening, she could not gather what was going on. Let me digress enough to say that the senses of sick people are sometimes extremely acute. I know by experience that, where one is obliged to lie still and watch the hours as they go by, listening to hear the clock strike to see how time passes, they get so they "catch on" to things that ordinarily would be unnoticed.

In settling up this affair, which was, perhaps, a little complicated, I knew my neighbor did not feel pleasant toward me, and I made up my mind that I would not argue over a difference of three or four dollars; but when I was called on to pay him twice that amount, which it seemed to me I did not justly owe, I, in a courteous way, asked for an explanation. My opponent resented this, and, in spite of myself, *I* got somewhat stirred up. It looked then and there as if it were right and proper to resent extortion, no matter what the consequences were. I had good sense enough, however (thank God) to realize that it was not safe for *me* to open my mouth any further. That little alarm prayer that I told you about years ago began to ring loudly — that old prayer of mine, "Lord, help!" and I dropped the matter. I submitted to what seemed to me great injustice. Soon after, I passed through the sick-room. I was hoping that Mrs. Root had not overheard any part of what I have mentioned, but I was a little fearful. She beckoned me with her finger. When I told her I had submitted for *her* sake, if for nothing else, she suggested that I should beg my neighbor's pardon. Now, right here came a big tussle. I do not know that it ever before occurred to me, circumstances might make it a duty, not only to give way to an unjust demand but also to beg pardon because you did not submit to the unjust demand with a *more cheerful spirit.* When a loved one is on a bed of sickness, it is of the utmost importance that there be no disturbance or discord going on, especially nothing that the sick one shall get hold of. Under the circumstances Mrs. Root's slightest wish or even suggestion was a law to me, and I made haste to do all she suggested. In fact, after I had recovered a moment I considered I *could* honestly beg pardon of my neighbor for even arguing over the matter of only six or eight dollars at that time — that is, I could consent to give him whatever he asked for, whether right or wrong, to avoid any unpleasantness *then* and *there.* And *then* I could see how such a spirit will help us to get along in this world. One who follows Christ Jesus may be called on to give not only his coat but his cloak also; and that, too, when the demand for either of them is a piece of injustice. Do you not see, dear reader, how many lawsuits, foolish quarrels, fights among neighbors, and even *murders*, might be averted where one of the parties is willing to say that, for Christ's sake, he would give up his coat and cloak also? or, in other words, if one of the neighbors who are in a quarrel should say, "My good friend, you are a neighbor; and, even though I can not but feel that your demand is unjust, I will submit to it rather than quarrel over a few dollars;" or, if you choose, over a small strip of land where there is a division line. I have prided myself all my life on being ready to be fair and honest in deal. I have always prided myself on thinking that *I* certainly am easy to get along with. I do not know but I shall have to admit here in my old age that, perhaps, I am not always easy to get along with after all. It is easy enough for me to agree to what *I* think is fair and just; but when I feel so sure that my opponent demands something clear out of reason, then I confess it is hard for me to give up. And then it is a pretty big task, after I have once given up, to be obliged to go and beg his pardon when I feel sure that *I* was exactly right and he entirely *wrong*.

Now, dear friends, if I have succeeded in making some beautiful passages in that old Bible shine out in a brighter light than they ever did before, then I shall be glad. If just one poor struggling brother or sister who reads GLEANINGS shall feel more inclined to read over and over again the wonderful words of the Savior — the words he uttered while here on earth, living just such a life as we live, then I shall say *again*, "May God be praised."

THEATERS AND THEIR TENDENCY.

After my Home paper in the Feb. 1 issue was in type I was pleasantly surprised to see how a sermon by Dr. Bartlett, of the First Congregational Church, Chicago, endorsed the position I have taken as follows:

> The whole awful catastrophe in the Iroquois theater was a combination of tendencies in an unwholesome modern life in which "graft" and selfishness and money-getting and pleasure-seeking joined hands in a revelry of death that has left the city prostrated and weeping. But what of the future? It is well to point out to Christain people who are occasional theater-goers that they are voluntarily putting themselves into the hands of tricky and unscrupulous men whose only care is for the dollar
>
> Can it be truly said that the theater in any way assists the spiritual life or reinforces the work of the church? The majority of plays are said to have something objectionable in them, and several young men have told me this one was no exception to the rule. Let us walk soberly before God this year, and choose our recreations and all our life with eternity in view.

HIGH PRESSURE
GARDENING
A. I. ROOT

HIGH-PRESSURE FARMING.

Julius Johannsen, of Port Clinton, Ohio, a progressive farmer and greenhouse man, sends us the following clipping from the *Watchtower:*

> About ten miles from Philadelphia there is a farm of fifteen acres the owner of which has brought it to an extremely high state of cultivation The results are almost past belief. The matter has been attracting the attention of the United States officials, who have been keeping tab on the wonderful doings of this farm for the past four years.
>
> I visited the farm, and met the owner personally. He is a minister in the nominal church, and manages this little farm additionally. On the fifteen acres he was supporting, at the time of my visit, twenty-nine head of cattle and three horses. He raised all the feed for this stock on the fifteen acres, and sold additionally considerable hay and grain which he was unable to use. He has a good-sized house and barn on the premises; and last year, besides maintaining himself and family from the proceeds of the farm, cleared from it a profit of $2100. He has brought his farm to a condition where it produces three crops annually without expending a dollar for fertilizers of any kind. The vegetation is so heavy and luxuriant that weeds are completely choked out. There is scarcely a weed to be found on the place. All this has been done on an ordinary clay soil in only twenty years. About him on every side are farms many times as large where the owners use great quantities of imported fertilizers, gather only one crop a year, and just manage to get along comfortably. C. J. WOODWORTH.

We regret that we have not the full address of the man who owns this fifteen-acre farm; but as we have a large number of subscribers in and about Philadelphia, I hope somebody will tell us more about it. Perhaps friend Selzer may be able to tell us more of this minister who is doing such wonderful work. Twenty-nine head of cattle and three horses is what furnishes the *fertility* for the fifteen acres; but it occurs to me that this minister must have a large family of wideawake boys and girls to help, or else he employs a great deal of help. After getting further particulars I I may decide to visit the place and give it a thorough write-up. I know there is a lot of high-pressure gardening going on in and around Philadelphia; but if I get the idea correctly this is not market-gardening but regular *farming* on *fifteen acres*. In our locality I have frequently grown two crops on the same ground, and a few times three; but to do this, even on fifteen acres, somebody, so far as my experience goes, has got to do a lot of hard work.

10½ BUSHELS OF POTATOES FROM ONE POUND OF SEED IN ONE SEASON.

> Knowing that you are interested in potato-growing, and seeing an article in one of the florists' trade papers a short time ago that may possibly interest you, I am going to send you a copy of it. It reads as follows:
>
> "I got one pound of the tubers (New Gold Coin potato) about March 1, 1903, and put them in a box in the greenhouse. When sprouted about two inches I took the sprouts out and put them in pots. When about four inches high I cut the tops off three or four leaves above the soil. These cuttings I potted in a compost of equal parts sand and soil. Nearly every one rooted; and when four or five inches high I took the tops off as before. This was continued until I had 465 plants from the one pound of tubers. These were set in the field at the proper time, and about September 20 I dug 934 lbs. of potatoes. Had I left them in the ground another thirty days I would have had 100 to 200 lbs. more, for many of the tubers were not fully matured."
>
> Now, the above may not be new to you, and may be in common practice among potato-growers who want to make the most they can out of a small quantity of seed; but while I knew it was an easy way to increase them by breaking off the sprouts and planting them in soil, it never occurred to me that they could be further propagated by cuttings taken from the sprouts.
>
> Now, Mr. Root, don't be backward about letting me know what you want in the plant line; and if I have them or can get them for you, I will be glad to send them. S. M. PIKE.
>
> St. Charles, Ill.

The above is "high-pressure" gardening without any question. Sometimes I have been afraid that the articles in this department did not always really belong there; but there is no question about the above; and from my experience with a properly arranged bed I think there is no question as to its truthfulness. Just now we are told in the *Scotsman* of Dec. 12, sent us by Mr. J. S. Townhead, Thornhill, Scotland, of a new potato in that country that has been sold for £150 ($726) for one pound weight, and the buyer was offered £10 (about $50) more than that for it later. Now, the man who has this wonderful new potato should not only read the above, but he had better build a greenhouse, roll up his sleeves, and go to work. I may say to our readers that friend Pike, who sends the above, is "the chap" who sends out rooted cuttings of all kinds of greenhouse-plants at a price ridiculously low. Send for his catalog if you want some nice plants to set in the window.

JAPANESE BUCKWHEAT IN CALIFORNIA.

We extract the following from *Farm and Fireside*:

> It is reported that Yolo County, California, will make an exhibit of Japanese buckwheat at the St. Louis Exposition. It was planted Aug. 1 and harvested September 16, and yielded about thirty-six bushels to the acre. The first distribution of this variety was made by the United States Department of Agriculture in 1888 The annual reports of the department for 1889 and 1890 show that the yield was one-third greater than the Silverhull or other varieties. Seed from such crops as that grown in Yolo County would prove of great value in the eastern section of the United States, as this variety resists drouth better than the common ones, and is adapted to all localities, from the Great Lakes to the Gulf of Mexico.

The above intimates that the crop was secured in 47 days after sowing. If there is no mistake about it, I think it is a little remarkable. The best crop we ever had—over 50 bushels per acre—was harvested in 65 days after sowing. Another thing, this is the first report I have seen of successful buckwheat-growing in California. At the present price of buckwheat for seed, there ought to be "big money" where one takes pains in preparing the ground and putting it in so as to get a good crop.

HUMBUGS AND SWINDLES.

A good many people think I am queer for insisting that the editors of home papers should consider themselves somewhat responsible for the character of the advertisements they admit to their columns. From a medical journal for the home, we copy the following as a sample of the kind of advertising a good many of these home papers seem to think are all right for the family circle:

> **SELF-HYPNOTIC HEALING.**
>
> I have made a late discovery that enables all to induce the hypnotic sleep in themselves instantly at first trial, awaken at any desired time, and thereby cure all known diseases and bad habits, control your "dream self," become a true somnambulist, pass into a wonderful clairvoyant sleep, see in visions things which are going on all over the world, travel in spirit to visit any home, and see just what is transpiring; trace up lost and stolen articles, find buried or hidden treasures; unravel the secrets of criminals; read the minds of friends and enemies; locate minerals and valuable mines; make finds and discoveries of untold value; read the very thoughts, life-history, and character of any person from the cradle to the grave; tell past, present, and future events; solve hard questions and problems in the sleep, and remember all when awake; produce the great telepathic function of the soul in a normal state, and develop your psychic faculties. This so-called mental-vision lesson will be sent absolutely free to everybody, positively guaranteed to enable you to do the above before any charge whatever.
>
> PROF. R. E. D.

Why, it fairly takes one's breath away to read it; and I confess it gives me a sort of feeling that my next youngest grandchild expressed a few days ago. He is getting to be very much interested in electricity, and I gave him a second-hand 25-cent dry-cell battery with two copper wires, and showed him how it would ring a doorbell. It was a great wonder to him, and he plied me with a great many questions. In order to explain it I told him the little battery contained lightning such as we see in the clouds when it thunders. Then I touched one of the wires to the coil on the bell, and showed him the electric flashes on a small scale. But it seems my explanations were almost too vivid and real; for he became frightened at the bottled-up lightning, and, backing away from it, said, "Take it away, grandpa—take it away." Now, I have something the same feeling that four-year-old Wynne had toward the electrical apparatus. If I had any faith in the professor's ability to do all he tells, "without stopping to catch breath," I think I too, would say, "Take it away, take it away—I do not want any such terrible power."

We sent for the wonderful secrets, and received a great amount of printed matter; but after the professor has declared over and over again that you are not to pay a cent until you do all he says, he wants $5.00 before he starts in. His regular fee is $50; but if you send him five he trusts you for the balance. If he does not demonstrate himself to be the "boss" liar of the universe, he comes pretty near it in his advertisement; and yet I suppose there are persons who will send him the $5.00.

SEEDS

Almost every one is thinking of planting garden now. To have the best garden you must plant the best seeds. Let us start you on the road to success.

¶ We are successors to the seed business of Mr. A. I. Root. "The best seed at the lowest prices" was his motto and the one we are following.

¶ Have you seen our catalog? Write us a postal, mentioning Gleanings, and we will send you a copy, and include a trial package of our improved Fordhook Fancy tomato.

E. C. Green & Son,
Seedsmen,
Medina, - - Ohio.

Very Low-rate Excursions to the West, Northwest, and Southwest via

WABASH

Tickets on sale every day during March and April to San Francisco, Los Angeles, Portland, Seattle, and to intermediate points at proportionately low fares, on which stop-overs will be granted at certain points. Also special one-way, colonist, and round-trip homeseekers' excursion tickets to Denver, Colorado Springs, Pueblo, and many other points in the Middle and Southern States, which will be on sale March 1st and 15th, and April 5th and 19th at greatly reduced rates.

Commencing April 22nd, and daily until April 30th, the Wabash will sell round-trip tickets to

San Francisco and Los Angeles

at a rate of less than one first-class fare for the round trip, with final return limit of June 30th, 1904. Stop-overs will be allowed at and west of Denver on these tickets, which may also be made to read via diverse routes. In addition to this, a stop-over privilege of ten days will be accorded to holders of these tickets at St. Louis upon payment of a fee of $1 00.

For rates and full information in detail apply by letter or in person to

WABASH TICKET OFFICE,
320 Fifth Avenue, Pittsburgh, Penna.

F. H. TRISTRAM,
Assistant Gen. Pass. Agt.

CHARLES HAMILTON,
Passenger Agent.

Southern Lands

FOR

Bee Culture, General Farming, Live-stock Raising, Fruit, Truck and Poultry Raising,

in sections traversed by

Southern Railway,

and the

Mobile & Ohio Railroad.

Good markets, productive soil, valuable timber, health region. Fine old-time plantations, farm lands, wild lands,

$3 TO $15 PER ACRE.

Interesting literature sent free on application to M. V. RICHARDS, Land and Industrial Agent, Washington, D. C.

CHAS. S. CHASE,
AGENT
Chemical Bldg.,
St. Louis, Mo.

T. B. THACKSTON,
TRAVELING AGENT
225 Dearborn St.,
Chicago, Ill.

BEE-KEEPERS, FARMERS, GARDNERS, ORCHARDISTS. I want you all to send for free catalog, WORLD'S FAIR edition describing the best hive ever made. Contains the principles of the J. A. Golden hive. My book, **THE QUEEN BEE**, tells why you should keep bees. It tells BEGINNERS IN BEE-KEEPING why they should and how they can begin right. Price, long as the present edition lasts, 25 cents, with supplement. First come first served.

T. K. MASSIE, Tophet, W. Va.

FARM LANDS

NET $1528.75 FROM ONE ACRE.

one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.

Handsomely illustrated descriptive booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama, sent free. JOHN W. WHITE,
Seaboard Air Line Railway,
Portsmouth, Va.

Splendid Location for Bee-keepers.

Mr. A. I. Root's Writings

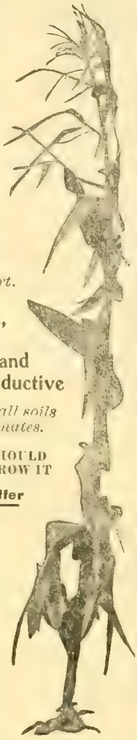
of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

450,000 TREES

200 varieties. Also **Grapes, Small Fruits** etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. **LEWIS ROESCH, Fredonia, N. Y.**



NORTHRUP, KING & CO'S

Peep o' Day

The Sensational Early, New

Sweet Corn

THAT IS SWEET

Ten days to two weeks earlier than any other sort.

Tenderest,
Juiciest,
Sweetest and
Most Productive

Suited to all soils and climates.

EVERY PRIVATE MARKET GARDEN SHOULD GROW IT

See Catalogue for Cash Prize Offer

BOYS Get a half acre or vacant lot and have a Sweet Corn Farm. People will buy this corn eagerly at a good price because it is early and sweet

SPECIAL OFFER Send 20 cents silver, or stamps, (with name of this magazine) for large packet of N. K. & Co's "Peep o' Day" Sweet Corn (300 seeds; enough for 60 hills) and our pictured catalogue of NORTHERN GROWN SEEDS. Valuable seed premiums FREE. **WRITE NOW.**

NORTHRUP, KING & CO.
Seedsmen, Minneapolis, Minn.

GOOD SEEDS CHEAP

BEST Ever Grown.

None better and none so low in price, 1c per pkt. and up, postpaid. Finest illustrated catalogue ever printed sent **FREE.** Engravings of every variety. A great lot of extra pkgs. of seeds, new sorts, presented free with every order. Some sorts onions only 55c per lb. Other seed equally low. 40 years a seed grower and dealer and all customers satisfied. No old seeds. New, fresh and reliable every year. Write for big FREE catalogue.

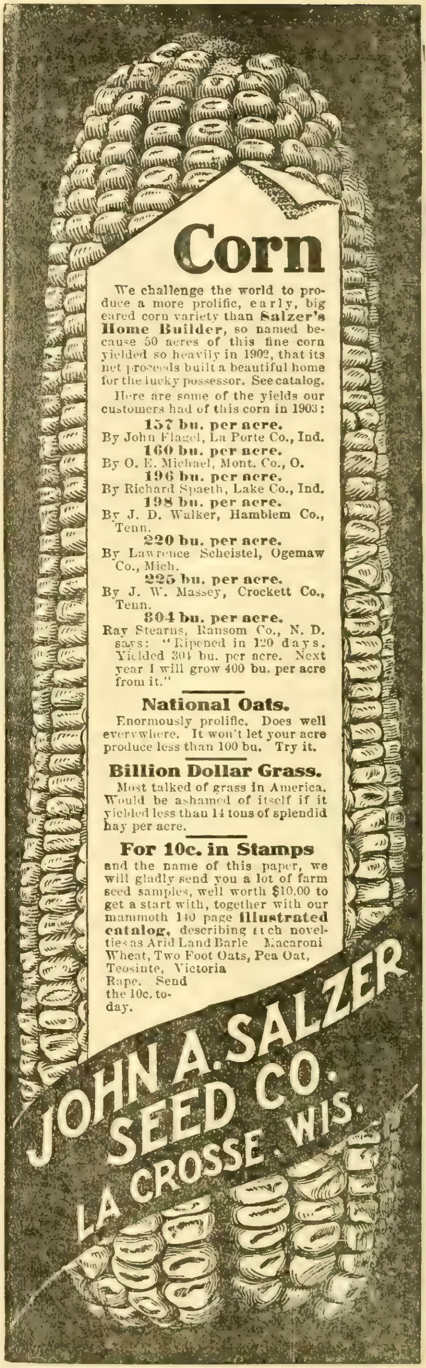
R. H. SHUMWAY. Rockford. Ill.

WEST MICHIGAN TREES

are **"bred for bearing."** That's why we cut all buds from the best fruited, bearing trees. It also insures stock true to name and variety. Over three million trees—913 acres. All new and standard varieties of Apple, Peach, Pear, Plum, Quince, etc. Also ornamental trees and shrubs. **We sell direct at wholesale prices.** Illustrated catalogue free.

LAKE MICHIGAN
BENTON HARBOR

WEST MICHIGAN NURSERIES,
Box 63, Benton Harbor, Mich.



Corn

We challenge the world to produce a more prolific, early, big eared corn variety than **Salzer's Home Builder**, so named because 50 acres of this fine corn yielded so heavily in 1902, that its net proceeds built a beautiful home for the lucky possessor. See catalog.

Here are some of the yields our customers had of this corn in 1903:

157 bu. per acre.
By John Flagel, La Porte Co., Ind.
160 bu. per acre.
By O. E. Michael, Mont. Co., O.
196 bu. per acre.
By Richard Spaeth, Lake Co., Ind.
198 bu. per acre.
By J. D. Walker, Hamblem Co., Tenn.
220 bu. per acre.
By Lawrence Scheistel, Ogemaw Co., Mich.
225 bu. per acre.
By J. W. Massey, Crockett Co., Tenn.
804 bu. per acre.
Ray Stearns, Ransom Co., N. D. says: "Ripened in 120 days. Yielded 304 bu. per acre. Next year I will grow 400 bu. per acre from it."

National Oats.

Enormously prolific. Does well everywhere. It won't let your acre produce less than 100 bu. Try it.

Billion Dollar Grass.

Most talked of grass in America. Would be ashamed of itself if it yielded less than 14 tons of splendid hay per acre.

For 10c. in Stamps

and the name of this paper, we will gladly send you a lot of farm seed samples, well worth $10.00 to get a start with, together with our mammoth 140 page **illustrated catalog,** describing such novelties as Arid Land Barle Macaroni Wheat, Two Foot Oats, Pea Oat, Teosinte, Victoria Rape. Send the 10c. today.

JOHN A. SALZER SEED CO.
LA CROSSE, WIS.

TREES THAT GROW

Hardy varieties that yield big crops. Grafted Apple 5½c; Budded Peach 5c; Concord Grapes 3c; Black Locust Seedling, $1.35 per 1000. Send for Illustrated catalogue, English or German, free.

GERMAN NURSERIES
We Pay the Freight

CARL SONDEREGGER
Box 100 Beatrice, Neb.

"He that loves a rosy cheek," uses only Williams' Shaving Soap.

Sold everywhere. Free trial sample for 2-cent stamp to pay postage. Write for booklet "How to Shave."

The J. B. Williams Co., Glastonbury, Ct.

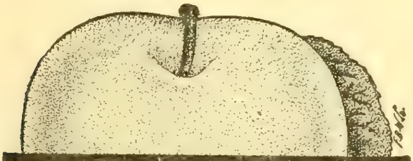
XX OR BEARING AGE
FRUIT TREES.

We are the one nursery that makes a specialty of growing and marketing trees of bearing age. If you don't want to wait on young stock in your grounds or small orchard, try Sweet's famous

GENESEE VALLEY XX TREES.

Grown with special care to transplant at fruiting age. Many have borne in the row and are sure to give satisfaction. Four to five years old, one to two inches diameter, and 6 to 8 feet high. Magnificent assortment of **Standard and Dwarf Pears, Plums and Cherries.** Every tree a superb specimen, clean, vigorous, shapely and strong rooted, dug and shipped so as to suffer least damage from transplanting. No scale or other disease. Full line of fruit and ornamental trees, shrubs, vines, etc. Established 1869. Write for new free catalog.

GEO. A. SWEET NURSERY CO., 12 Maple St., Dansville, N. Y.



THE APPLE MAN

above all others is the one who needs to spray. Good, smooth, even sized, disease-free, salable apples are now an impossibility without spraying. For the apple man's use nothing quite equals our

Century Barrel Sprayer.

Submerged brass cylinder, brass ball valves, everlasting plunger packing, automatic agitator. Unequalled for durability, ease of operation, free water ways. Eighteen styles of sprayers. Catalogue with formulas and testimonials free.

THE DEMING COMPANY, SALEM, OHIO.
Western Agts., Henion & Hubbell, Chicago.

FRUITFUL TREES

Healthy, hardy, vigorous trees; finest varieties; honest values. Apples, 5½c; Peach, 5c; Concord Grapes, $20 per 1000; Rambler Roses, 25c; Black Locust and Russian Mulberry, $1.40 per 1000. Freight prepaid. Catalogue free.

Gage County Nurseries
Box 647 Beatrice, Neb.

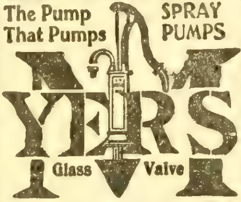
"Once Grown Always Grown"
The Maule motto for more than 25 years. My new
SEED
BOOK for 1904
Cost over $50,000 to publish. If you have a garden you can have a copy for the asking. Send a postal for it to
Wm. Henry Maule, Philadelphia, Pa.

Seed Oats
65c a bu. and up
The cleanest, heaviest, best yielding oats are Michigan Northern Grown. **Hammond's Morgan-Feller, Hammond's English Wonder, Czar of Russia** and **Michigan Wonder,** the four best varieties. Rust proof, stiff straw, have yielded 220 bu. per acre. Catalog describing these oats and all other farm seeds free on request. **HARRY N. HAMMOND SEED CO, Ltd.,**
Box 69 Bay City, Mich.

SPRAY PUMPS

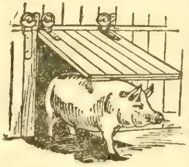
The Pump That Pumps

SPRAY PUMPS



Double-acting, Lift, Tank and Spray PUMPS
Store Ladders, Etc.
HAY TOOLS
of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers

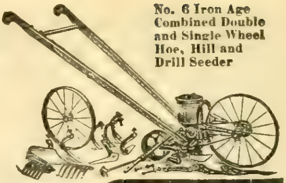


with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.
F. E. MYERS & BRO.
Ashland, - Ohio.

Farmers' Handy Wagon
With 4-Inch Tire Steel Wheels

ONLY
$21.95

Low and handy. Saves labor. Wide tires, avoid cutting farm into ruts. Will hold up any two-horse load. We also furnish Steel Wheels to fit any axle. Any size wheel, any width of tire. Catalogue free.
EMPIRE MANUFACTURING CO., Box 91. Quincy, Ill.



No. 6 Iron Age Combined Double and Single Wheel Hoe, Hill and Drill Seeder

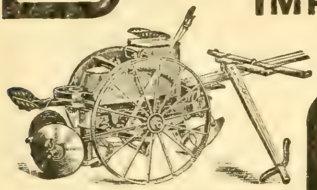
Labor Saved=Profit Made

The factors that control the farmers' profit are only two—work and weather. He can't control the weather; he *can* control the work.

IRON AGE
IMPLEMENTS

give the operator every possible mechanical advantage at his work. They will earn many times their cost because they more than double the results of a given amount of labor. Ask your dealer about these tools. Write for **New Iron Age Book,** and let us tell you more about them.

BATEMAN MFG. CO., Box 120 Grenloch, N. J.



Improved Robbins' Potato Planter

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"The Leading American Seed Catalogue," is now more "a leader" than ever before. Thoroughly revised and greatly improved, it tells not only the Plain Truth about seeds, but has also **many new features for 1904.**

An elegant book of 178 pages, it contains hundreds of illustrations from nature and **six superb lithographic colored plates.** It shows in natural colors thirteen "true and tried" new Vegetables of sterling merit, three new Nasturtiums (of a distinct type), and seven Superb Sweet Peas,—all painted from nature, by New York's leading artist, at our famous Fordhook Farms.

It presents also *twenty-one faithful photogravures* of America's Largest Mail-order Seed Trade,—views in both town and country. Altogether it is pronounced the

Best Seed Catalogue Ever Published

And it's Free! provided you will *ask for it now.* **It will cost YOU one cent** to mail your address on a postal card to us. It will cost us four cents postage—plus eight cents for the catalogue,—just **twelve cents** to respond to your request.

We are willing to bear this risk—**twelve for one!** ☞ If you will only read

BURPEE'S FARM ANNUAL for 1904

we feel quite sure that you will favor us with **at least a trial order,** and this is all we ask, as Burpee's Seeds will tell their own story in your garden and fields.

Better send for this catalogue **to-day!** One cent spent by you insures twelve cents spent by us, and this should be sufficient to convince you that we have *faith* in Burpee's Seeds and also in our ability to persuade you **to try Burpee's Seeds,** if you will only read Burpee's Farm Annual.

Are you willing to spend that cent?

Shall we hear from you? If not, You will miss an opportunity to become acquainted with **the very BEST SEEDS that can be grown!**

REGISTERED WAB TRADE MARK

W. ATLEE BURPEE & CO., Philadelphia, Pa.

BARGAINS IN PLANTS AND TREES

worth double the money, by mail postpaid.

200 Marie Strawberry	$1 00	20 Wilder Currants	$1 00
100 King Raspberry	1 00	20 Fay "	1 00
100 Ea. King Blackberry	1 00	20 Elberta Peach	1 00
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Everything for the fruit grower best varieties cheap. Free catalog of great bargains—3 new strawberry plants free for 6 names of fruit growers and 2c stamp

W. N. SCARFF, NEW CARLISLE, OHIO

Strawberries

300 Choice Plants, Express Prepaid for $1.50.

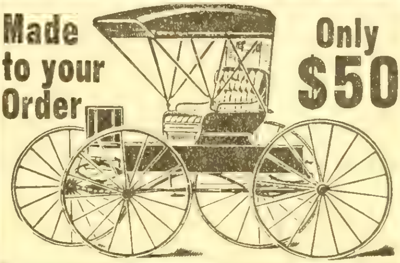
100 each of early, medium and late. None stronger or better. Offer good to any express office in U. S. It pays to get the best. Beautiful **Strawberry Catalogue Free.**

W. F. Allen, Salisbury, Md.

$50 Buys a Built-to-Order SPLIT HICKORY SPECIAL BUGGY

Made to your Order

Only $50



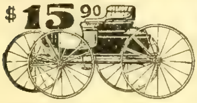
We know you have always wanted to have a Buggy built just as you wanted it. Here is your opportunity without paying the carriage maker any extra. **Send for Full Description** to aid you in selecting the style, fittings, color, etc. of a Buggy to be built for you of the celebrated **SPLIT HICKORY** constructed at a price of **$50.** All **Split Hickory Special Buggies** are furnished complete with good, high padded, patent leather dash, fine quality, full length carpet, side curtains, storm apron, quick shifting shaft couplings, full leathered shafts with 36-inch point leathers, special heel braces and corner braces. We make the buggy to suit the customer's taste and guarantee it to please, no matter what the requirements are.

30 DAYS FREE TRIAL allowed on Split Hickory Vehicles for you to test them thoroughly, in every way. A positive 2 years guarantee given with every one. This is a plain business proposition between business men. Our reputation is established by years of honorable dealing with buggy users direct and you are assured of a square deal when you accept our proposition. Send for our FREE 136-page Catalog of Split Hickory Vehicles and Harness.

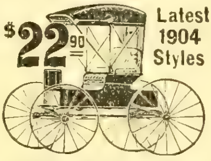
The Ohio Carriage Mfg. Co., H. C. PHELPS, President. **1320 Sixth St., Cincinnati, O.**

NOTE.—We carry a full line of high-grade Harness, sold direct to the user at wholesale prices.

WE PARALYZE COMPETITION

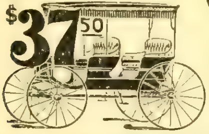


$15.90 for this latest 1904 Style Open Buggy, as described in our Big Free Buggy Catalog.



Latest 1904 Styles

$22.90 For this Latest 1904 Style Top Buggy, as described in our Big Free Buggy Catalog.



$37.50 for this latest 1904 style **Canopy Top Surrey**, without top, or $42.50 with top, as shown in our **Big Free Buggy Catalog.** Shipped on 30 days **FREE TRIAL.**

CO-OPERATION DOES IT

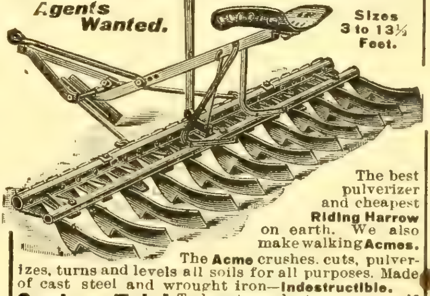
Send us a postal for our Big Free 1904 Vehicle Catalog and our great book **explaining how co-operation reduces the prices on everything.** Freight rates guaranteed; money refunded if goods are not satisfactory.

First National Co-Operative Society
(CASH BUYERS UNION)
345B Cash Buyers Building, CHICAGO.

ACME Pulverizing **HARROW**
Clod Crusher and Leveler

Agents Wanted.

Sizes 3 to 13½ Feet.



The best pulverizer and cheapest **Riding Harrow** on earth. We also make walking **Acmes.** The **Acme** crushes, cuts, pulverizes, turns and levels all soils for all purposes. Made of cast steel and wrought iron—**Indestructible.**

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Every Home should be adorned with **Palms** and other leaf and flowering Plants. We have 44 greenhouses full. Also have hundreds of carloads of **Fruit and Ornamental Trees, Shrubs, Roses, Plants, Vines, Bulbs, Seeds.** Rarest new, choicest old. Mail size postpaid, safe arrival and satisfaction guaranteed. Larger by express or freight. Direct deal will save you money—try it. Elegant 168-page catalogue free. 50 years. 1000 acres, 44 greenhouses.

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The Cyphers Guarantee

backed by every dollar we have in the world is made to **you**, personally. It says that **YOU** will hatch a larger percentage of healthy, vigorous chicks, with less oil, less attention, less trouble and more satisfaction, in a genuine, patented

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than in any other make or you get your money back. The genuine Cyphers is the only patent diaphragm, non-moisture, self-ventilating, self-regulating incubator. Adopted and endorsed by 36 Government Experiment Stations and used by more leading poultrymen than all other makes combined. Catalogue free if you name this paper. Address nearest office.

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A HEAT HOLDER

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"The removable chick tray is the grandest feature an incubator can have." Mr. Ellison, Poultry Judge, said that about the

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It is a convenient incubator. Easy to clean, simple to understand. Gives no trouble. Write for free catalog.

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IT IS A FACT

that poultry pays a larger profit for the money invested than any other business; that anybody may make a success of it without long training or previous experience; that the **Reliable Incubators and Brooders** will give the best results in all cases. Our **20th Century Poultry Book** tells just why, and a hundred other things you should know. We mail the book for 10 cents. Write to-day. We have 115 yards of thoroughbred poultry.

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NO GAS TO KILL

Very little lamp gas in an incubator egg chamber often kills every germ. No gas can possibly creep into the

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because it's heated by our rustless, heavy copper, hot water circulator. Don't waste money and lose good eggs experimenting with poor incubators. Send for free catalogue C 10 and learn why the Sure Hatch hatches *sure*. **Sure Hatch Incubator Co., Clay Center, Neb. and Indianapolis, Ind.**

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No half warmed eggs. By "round" system every egg gets same heat—bigger per cent of eggs hatched. Special regulator overcomes atmospheric changes. Free catalog tells the whole story.

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FEATHERS VENTILATE BEST

The hen supplies air and moisture to eggs thro her feathers. **Feather Incubator** walls are made of feathers—that's why it's an ideal hatcher. Free catalogue tells all about this remarkable machine. Write at once to

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Never Disappoints

When you put eggs—fertile eggs into

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you are never disappointed with the results. Not only hatches them all; but hatches chicks that are strong, lively and vigorous. Guaranteed. The cheapest, good incubator made. Catalog Free.

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"Model" is the name that should be on the Incubator and Brooder you buy this season. Why? They're made by Cyphers—the man who has built the most successful, world-famous hatchers. The free catalog will interest you. Write for it now and learn how to make money.

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of Prize-Winning Poultry

for 1904. This book is printed in different colors. Contains a **Fine Chromo** of lifelike fowls suitable for training. It illustrates and describes 60 varieties of poultry, ducks, geese, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and such information as is of much use to all who keep chickens. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.

Make Your Own Fertilizer

at Small Cost with

Wilson's Phosphate Mills

From 1 to 40 H. P. Also **Bone Cutters**, hand and power, for the poultrymen; **Farm Feed Mills**, **Graham Flour Hand Mills**, **Grit and Shell Mills.** Send for catalogue.

WILSON BROS., Sole Mfrs.,
Easton, Pa.

SCRAWNY CHICKS

lack sufficient nourishment. Fatten them—make them healthy—feed them **Mrs. Pinkerton's Chick Food.** It prevents bowel trouble. It's all food—easily digested. Write for catalog of prize birds at St. Louis and Chicago 1903 Shows. Gives prices and valuable information.

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Beautifully illustrated. 50c yr., shows readers how to succeed with Poultry.

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$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

GEO. H. STAHL, Quincy, Ill.

100 PER CENT HATCHES

Our new catalogue contains hundreds of them obtained by **BUCKEYE INCUBATOR** users in all parts of the U. S. Send for a copy and read the proof. It is free.

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GET MORE EGGS

Your Hens Will Lay
twice as well if you use a
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Ten days free trial. No money in advance.
Catalogue free.
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In Colors FREE with a Sample Copy of Fancier's Gazette, the most instructive poultry paper published. It teaches you how to make money out of the greatest industry in the world. Also learn about our $15,000 World's Fair prize offer. Send us your name on a postal card.

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$1000 EGG, OR HOW MANDY PAID THE MORTGAGE FREE

a book that will help every poultry keeper solve **all** the problems and make poultry keeping pay. An account of actual experience, you ought to read. Free if you mention this paper. **Geo. H. Lee Co., Omaha, Neb.**

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Make Manure Hauling Easy

Every farmer dreads the hauling out of the season's manure. He knows it is the heaviest, most slavish, back breaking work on the farm. Manure is heavy. It is never going to be any lighter. Better seek a remedy. If you only had to lift it half as high in loading as you do now it would decrease the labor more than half. The last half of the lift is more than twice as hard as the first half. That's where the strain comes in. A low-down, easy-to-load

Handy Electric Wagon

will make hauling manure easy. Easier and quicker loaded. Then there are the broad tires—just as broad as you want them up to 8 inches. They don't cut in and rut the soil. They don't spoil meadows or the fall sown grain. Next to a Handy Electric Wagon the best thing is to use a set of our **Electric Steel Wheels** on your ordinary wagon. Can't tell it all here. Write for new **Illustrated Catalogue.** We mail it free for the asking.

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Seed Corn

$1 00 bu, and up. Michigan Northern Grown is the earliest and produces largest crops. **Hammond's Sixty Day Flint, American Pride, Race Horse Dent** and **Thoroughbred White Dent** are the 4 famous varieties today. American Pride made 197 bu shelled corn per acre. 100-page catalog fully describing these wonderful corns sent on request. **HARRY N. HAMMOND SEED CO., Ltd.,**
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COILED SPRING FENCE CO.
Box 101, **Winchester, Indiana, U. S. A.**

JOS. NYSEWANDER, DES MOINES, IOWA.

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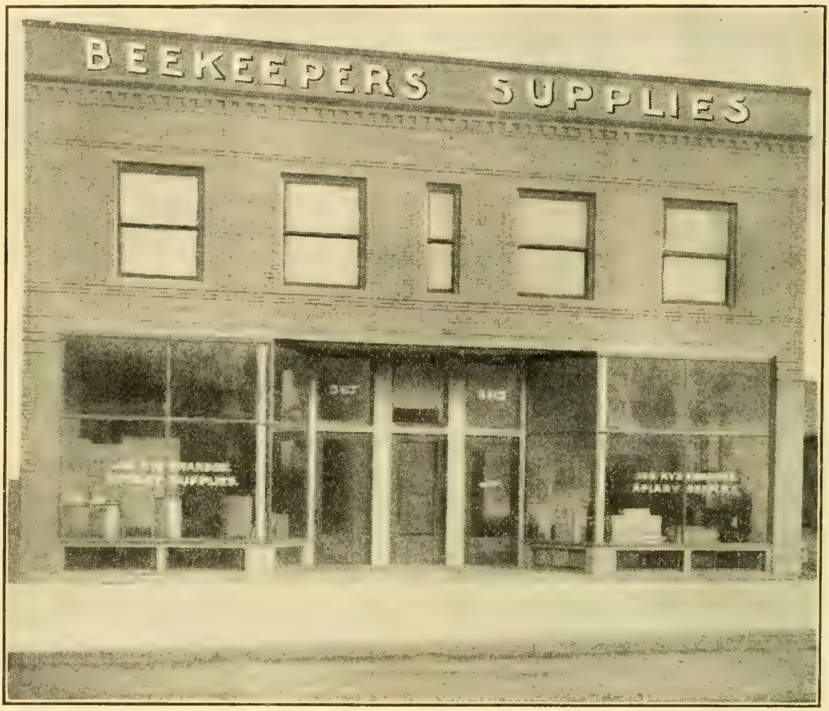

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Eighteen years in the supply business, with last year by far the largest in our history, proves we give satisfaction. We can satisfy you. Our goods are unexcelled, and our prices are right. Remember there are discounts on orders received now. We are centrally located, have every convenience for handling business with dispatch, and our shipping facilities are the best. ❖ ❖ ❖

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LEWIS' GOODS AT FACTORY PRICES.

Write to us to-day and say what you want and get our prices. New Catalog of 84 pages. It is free. We also handle

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The Best Bee-goods in the World

are no better than those we make, and the chances are that they are not so good. If you buy of us

Yon will not be Disappointed. We are undersold by no one.

Send for new catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cts. a year; especially for beginners.

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W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices.
Order of him and save the freight.

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Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

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Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
Chas. A. Meyers, Leipsic, Ohio.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Full colonies of bees for spring delivery.
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WHAT have you to exchange for a one-horse sweep power?
Geo. A. Ohmert, Rockdale, Ia.

WANTED.—To exchange modern firearms for incubators. Address
216 Court Street, Reading, Pa.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—To exchange new bee supplies for second-hand typewriter in good condition.
D. W. Switzer, Roebuck, S. C.

WANTED.—Bees Who can furnish cheapest? Colonies or by the pound, for one 2½ h. p. engine, good as new, $65 00.
G. Routzahn, Biglerville, Pa.

WANTED.—Red-raspberry plants (Red Marlborough), warranted true to name, for bees or long-tongued queens.
J. B Summers, Berthoud, Colo.

WANTED.—To exchange for offers 6-horse engine, 10-horse boiler, 100-gal. copper, all good as new.
Chas H. Thies, Chester, Ill.

WANTED.—Second hand Barnes foot-power saw. State how long used, condition, and price; also whether the new or old style.
The A. I. Root Co., 10 Vine St., Philadelphia, Pa.

WANTED.—Price on 100 three-frame nuclei, young hybrid or Italian queens, delivered before first day of June by express at Aurora, N. Y.
S. J. Snyder, Aurora, Cayuga Co., N. Y.
R. D. No 29.

WANTED.—To sell or exchange high-grade typewriter, Excelsior 260 egg incubator, apple-trees, strawberry plants, bee-supplies, foundation, encyclopædia, 200 new books, and twelve volumes Gleanings, for beeswax, honey, Root-German wax-press, wheel hoe and drill, or cash.
Box 177, Hyde Park, Vermont.

Situations Wanted.

WANTED.—Situation with an up-to-date queen-breeder, east of the Miss. River, to learn the business. I have experience with bees (queen-rearing excepted) in both the East and West. Correspondence solicited. Address
Queen Breeder,
Care The A. I. Root Co, Medina, Ohio.

Help Wanted.

WANTED.—A competent man to take charge of 200 300 colonies of bees. References required. Address The Texas Honey Producers' Ass'n,
Floresville, Tex.

WANTED.—A man with family and experience, to take charge of a fruit-farm; must understand spraying, and for fruit in general.
James West, Montpelier, Ind.

Addresses Wanted.

WANTED.—Addresses of bee-keepers who use chaff hives.
Geo E. Hilton, Fremont, Mich.

WANTED.—Catalogs of bee-keepers other than the A. I. Root Co.
A. E. Titoff, Medina, O.

WANTED.—Addresses of parties interested in poultry supplies.
Griggs Bros.
523 Monroe St., Toledo, O.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address Henry Alley, Wenham, Mass.

WANTED.—To furnish you with groceries at reduced prices. Send for our free catalog
Vickery Bros, Evansville, Ind.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1 00 per month; $10.00 per year. Daily, except Monday.

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For Sale.—A limited amount of ginseng sets.
C. G. Marsh, Kirkwood, Broome Co., N. Y.

For Sale.—75 colonies of bees packed in chaff on summer stands; also 200 lbs. of comb honey.
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For Sale.—Recleaned clover seed. As fine as money will buy. $6.50 per bu., sacks free, f. o b. De Soto.
Chas. Piper, DeSoto, Ill.

For Sale.—First-class 110-acre dairy farm, 1½ miles from Watertown. Good location for bees. Good buildings. Address
Box 22, Watertown, Conn.

For Sale.—5000 L extracting combs, in first-class condition, at 10 c each. Also 200 8-frame painted bodies at 25c.
H. & W. J. Manley, Sanilac Center, Mich.

For Sale.—Leather colored Italian bees, with a tested queen in each colony, at $6 00 per colony. Good strong swarms. In lots of ten. $5.00 each. No disease.
F. A. Gray, Redwood Falls, Minn.

For Sale.—8-frame 1½-story hives made of Michigan white pine. Root's frames inside. Five, $5.00; 10, $9 00. Nailed and painted, ready for bees, $1.50. Sections until April 1st at last year's prices. Send for list.
W. D. Soper, R. F. D. No. 3, Jackson, Mich.

For Sale.—Apiarian outfit of 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot.
X Y Z, Gleanings.

For Sale.—My apiary outfit consisting of Dovetailed-hive bodies filled with frames of comb; honey and wax extractors, comb-buckets, and other fixtures. Will fill orders as received until sold. Saw-mill well located almost new. Also good farm well located. All for sale cheap.
B. J. Cross, Auburn, Alabama.

For Sale.—An apiary and farm, consisting of 120 acres good grazing land, and only fifteen minutes' walk from the city of Cardenas, and on the public road; having on said place 350 hives (American system), all necessary supplies to handle these, good house on grounds, numerous fruit trees, plenty of shade for bees, thirty odd head of cattle raised on the place, among these six fine American milch cows (Holstein stock) selling nice little amount of milk daily, good-riding saddle-horse, ox wagon with fine yoke oxen in fine condition, two good water wells, large pineapple-grove now producing, and with capacity to plant, if required, 60 000 henequen plants. Sell for cash, or on time with satisfactory guarantee. Address
American Bee Hive, P. O. Box 44, Cardenas, Cuba.

Walter S. Pouder. Established 1889.

Bee-keepers' Supplies.

Distributor of Root's Goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Co., and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee Smokers, Bee-veils, Pouder Honey-jars,

.........and, in fact, everything used by Bee-keepers........

Headquarters in the West for the Danzenbaker Hive which is so rapidly gaining in popularity among our most successful comb-honey producers. Investigate its merits.

No order too small, and none too large. "Satisfaction guaranteed" goes with every shipment. A pleased customer is the best advertisement that my business has ever had. Remember that it is always a pleasure to respond promptly to any communication pertaining to the bee or honey industry.

Beeswax Wanted.--I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package.

Take Notice.--Finest Comb and Extracted Honey on hand at all times. I handle several carloads during a season, and if your local demand exceeds your supply I can furnish you promptly, and at prices that will justify you in handling it. If interested write for my special price list of honey.

My Illustrated Catalog is mailed free to every applicant. Address your communications to

WALTER S. POUDER,

513-515 Massachusetts Ave., - INDIANAPOLIS, IND.

SPECIAL NOTICES

Special Notices By Our Business Manager.

GUS. DITTMER'S FOUNDATION-FACTORY BURNED.

The following letter, just received from Mr. Dittmer, will explain all about his loss:

Mr. Root:—You have already heard through my son of my great misfortune, last Saturday, in the burning of my factory and office. About 6000 lbs of foundation and over 2000 lbs. of wax went up To-day is the first time I have tried to write or do any thing; but I am getting reconciled to the situation, and have started out to make the best of it. Yesterday I bought a two-story house, 24×34, which will be placed on my lots this week; and within 30 days, or as soon as I can secure wax enough to start with. we shall be ready for the foundation trade again. Every thing else we can furnish. What I need at once is lots of wax.

I have lost most of my papers, including my mailing-list. All of my Saturday morning mail, except the remittances, was burned. I have no way of notifying any one, as names and address are lost. I want you to present to your readers in a way that all will see it the dilemma that I am in. I want to hear from every one who has an order with me. or has written me in a mail that should have reached me last Saturday, or any one looking for an invoice or letter of any kind from me.

I also want a card from all of my friends and patrons, and from every one who has been receiving my catalog, for the reason that my mailing-list is lost. I also want all of my friends and patrons to have patience with me and give me a chance on my foundation orders. As soon as we get started again we will, if necessary, run night and day until we catch up. If they have any wax for me, ship it at once at very best price. I also want them to send their orders right along as if nothing had happened. We can furnish every thing but foundation the same as before, and be ready to furnish that as soon as we can start up, which we expect to do inside of 30 days. If they don't get letters as expected, they must not be impatient. I shall soon have another supply of catalogs. I shall expect every one who owes me to write me at once.

Augusta, Wis., Feb. 23. Gus. Dittmer.

We desire to help our brother, even though a competitor, and suggest that our friends who have wax put themselves in correspondence with him at once. Mr. D. is well backed financially, and fully able to take care of any consignments of wax sent him. I suggest that those who have written him lately send him duplicates of the letters. This will help him to straighten out his business, and enable him to do justice to all. He does not say any thing about his machinery being burned, and so we assume he saved that.

Later.—Just as we go to press we have word from Mr Dittmer that he already has several tons of wax on the way to him, and will be running as soon as his building is moved and machinery set up.

Special Notices by A. I. Root.

WANTED—SEED OF THE GLOBE THISTLE OR CHAPMAN HONEY-PLANT.

If anybody can furnish us even a little pinch of this seed, to get a start, we shall be glad to get it.

WANTED, SPIDER PLANT SEED.

If any of the friends have any spider plant seed (*Cleome pungens*) I hope they will please let us know what they have and what they want for it.

WANTED—JAPANESE BUCKWHEAT FOR SEED.

If any of the friends have any of the above to spare, I wish they would send samples, tell how much, and what they want for it.

SEED POTATOES ALL SOLD.

Our seed potatoes are all sold, and we shall have to return quite a little money. I suppose the reason why they went off so quickly is the rapid advance in potatoes for table use. We are told by the dailies that choice table potatoes sold for $1 10 a bushel a few days ago. A year ago this spring, even until along in May, seed potatoes, especially the extra earlies, were going very slowly. As a result of this I expected there would be a shortage this season.

TERRY'S BOOK, "OUR FARMING."

We are glad to tell you that this valuable book has been revised, and the price is one dollar instead of two as formerly; and to all regular readers of Gleanings we will make a special price of 75 cents. If wanted by mail, add 13 cents extra for postage; and if any of our friends have, during the past six months, paid $1.50 for the book (the price given in our book catalog), we will refund the difference if they will call our attention to the matter by postal card or otherwise.

PAGE

If Your Breachy Stock

has hooked, jammed, and banged your wire fences to pieces you ought to buy Page fence next time.

PAGE WOVEN WIRE FENCE CO., Adrian, Michigan.

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1000 Note-heads, ... **$1.50**
1000 Envelopes, XXX, 6 1-2, ... **1.75**
250 of either, $1.00, postpaid. Samples and estimates Free.
Young Brothers, Girard, Pa.

Bee-Keepers' Supply Co.
43 Smith St., Newburgh, N. Y.
W. B. Vaughan, Manager.

ANY ONE wishing to loan or invest money in Cuba on good security, and large interest, write
Joseph Clark, Caballos, Cuba.

AGENTS WANTED—New Ohio Map, just published. Largest and best on the market. Write for terms and territory at once and get to work.
RAND, McNALLY & CO., Chicago, Ill.

Hive-numbers! ALUMINUM. Latest, and same as we use in our apiary.
Samples Free. Address **GEO. W. BERCAW,**
Eltoro, Orange Co., Calif.

BEE-KEEPERS' SUPPLIES FOR KANSAS

Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*

A. W. SWAN & CO. Centralia, Kan.

E. E. Lawrence (Box G 28), **Doniphan, Mo.**
Breeder of Fine Italian
QUEEN BEES. Send for Price List.
Local Agents for Root's Goods.

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TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases, and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address **J. C. HALE, Winchester, Tenn.**

SWEET-POTATO SEED

Sound, bright stock; most popular varieties. Send for descriptive price list. :-: :-:

L. H. Mahan, Box 143 Terre Haute, Ind.

1884 **1904**

Twenty Years

Of experience in the manufacture of Hives and Supplies, and a little longer in Queen-rearing, with good facilities, will enable us to fill your orders with satisfaction and promptness. :: Let us send you our 64-page Catalog. . . .

J. M. JENKINS,

WETUMPKA, = = ALABAMA.

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NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

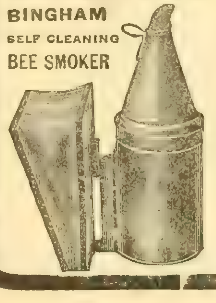
Dittmer's Foundation

RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the **Cleanest and Purest,** and in all respects the best and most desirable. Send for samples. Working wax into foundation, for cash, a specialty.
Beeswax always wanted at **Highest Price.**
A Full Line of Supplies, Retail and Wholesale.
Send at once for catalog, with prices and discounts.
E. Grainger & Co., Toronto, Ont., sole agents for Canada.

GUS. DITTMER, Augusta, Wisconsin

ORIGINAL PATENT BINGHAM SMOKERS.



4-inch heavy tin Smoke Engine, 381 holes in steel fire-grate, postpaid	$1 50
3½-inch Doctor, 286 holes in grate	1 10
3-inch Conqueror, 220 holes in grate	1 00
2½-inch Large, 170 holes in grate	90
2-inch Wonder, 110 holes in grate	65
4-inch heavy Copper, 381 holes in grate	2 00

Twenty-five years the only patents granted, most improved, standard, and best in the world. *Never a complaint.* All have shields, bent cup, and coil-wire handles. Never go out, or throw sparks or soot. Bingham Smokers are not like other smokers. I would like to show you the many letters I have, but will summarize them below: " Don't see how they could be improved;" "Best I ever used;" "Perfect satisfaction;" "Perfection itself." The latest unadvertised patent, dated 1903, sent by the inventor on receipt of 10c above regular prices of the 3 larger sizes of smokers.

T. F. BINGHAM, Farwell, Mich.

Volume XXXII. MARCH 15, 1904. Number 6

GLEANINGS IN BEE CULTURE

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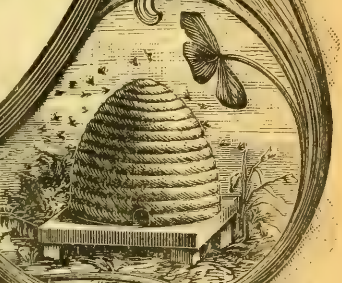

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A. G. WOODMAN
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Consisting of a full line of

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As well as Weed Foundation, Section Boxes, Section-presses, Enamel-cloth, Brushes, Honey-boards, Tin Rabbits, Taps for cutting-screw-holes, and Manum Swarm-catchers.

Write for descriptive matter regarding Hilton Chaff Hives and T-supers, with prices on the number you think of purchasing.

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GEO. F. HILTON, Fremont, Mich.

Any man in Michigan that Keeps bees – one swarm or five hundred, – is the man we are looking for.

Are you that man?

Our catalog for the asking.

M. H. Hunt & Son.
Bell Branch, Mich.

we sell Root's Goods in Michigan

we sell the Danz Hive Send for booklet.

Headquarters for

BEE-SUPPLIES.

Root's Goods at Root's Factory Prices.

Large, complete stock now ready; liberal discount on early orders; insure you prompt service and lowest freight rates. Give me your orders and you will save money. Catalog free—send for same.

SEEDS OF DIFFERENT HONEY-PLANTS.

Let me book your order for QUEENS (see catalog, page 29) as stock for early orders is limited. NUCLEI ready to supply, beginning June.

C. H. W. WEBER,

Office and Salesroom, 2146 and 2148 Central Ave.
Warehouse, Freeman and Central Aves.

CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The demand for honey is brighter than it has been for the past sixty days. We continue to offer amber extracted in barrels at 5½@6½, according to quality. White clover extracted is a drag on the market at 6½@8, in barrels and cans Comb honey seems to be reviving at 13½@15 for fancy. Beeswax is wanted by us at 30, delivered here.

THE FRED W. MUTH CO.,
Mar. 4. 51 Walnut St., Cincinnati, Ohio.

NEW YORK.—The market on comb honey is decidedly dull. There is some demand for white honey, but prices are ruling rather low. We quote fancy white at 13@14c; No. 1 at 12, amber at 11, and in round lots even these prices have to be shaded in order to effect sales. There is no demand at all for dark and buckwheat comb honey, and it looks as if some of it would have to be carried over. We quote nominally at 9@10. There is a fair demand for extracted honey at irregular prices, fancy white bringing 6½@7; light amber, 5½@6; other grades 5@5½; Southern, common to fair, 50@55 per gallon. Beeswax, firm at 29@30.

HILDRETH & SEGELKEN,
Mar. 7. 265-267 Greenwich St., New York.

CHICAGO.—It is difficult to get more than 12 cts. per lb. for any lot of white comb honey, with sales chiefly at 11 Even at this price it does not work off as fast as owners wish it would Selections in the most desirable grades bring a little higher price in small quantities; off grades sell at 1 and 2 cts. per lb. less. Extracted honey is plentiful, and slow of sale; white brings 6@7; amber, 5@6, according to quality and style of package. Beeswax is active at 30.

R. A. BURNETT & CO.,
March 9. 199 So. Water Street.

PHILADELPHIA.—There has not been much change since last quotations on comb honey. Small lots have been arriving freely, but principally of poor quality, and have been sold at whatever the commission man could get for them, ranging from 10 cts up. We quote fancy comb honey, 14@15; No. 1, 12@13; amber, 10@11; extracted, white, 7½@8; amber, 6@7; Southern 5@6, according to the package. Beeswax sells readily at 13 We are producers of honey, but do not handle on commission.

WM. A. SEISER,
March 10. 10 Vine Street.

KANSAS CITY.—There is not much change in the honey market; but the demand seems to be slowly picking up, and we should not be surprised to see a good trade during the next month. Prices to-day, as follows: Fancy and No 1 comb, 24 section cases, $2.25; No. 2 comb, 24 section cases, $2 00. Extracted, white, 6@6½; Extracted, amber, 5½@6. Beeswax, 30 wax 30

C. C. CLEMONS & CO.,
March 8. Kansas City, Mo.

ST. LOUIS.—The supply of comb honey has decreased considerably, and prices are more or less nominal at 13@14 for fancy; A No. 1, 12@12½; No. 1, 10@11. Extracted, 6@6½, in cans; extracted in barrels, 5@5½.

R. HARTMANN & CO.,
Mar. 7. St. Louis, Mo.

COLUMBUS.—Demand is fair for comb honey, but market is somewhat easier. White sells from 12@13½; amber, 10@11. Receipts moderate.

EVANS & TURNER,
Mar. 8. Columbus, O.

BOSTON.—We quote as follows: Fancy white, 16; A No. 1, 15½; No. 1, 15@15½. Extracted fancy, white, 8; light amber, 6½@7, according to quality.

BLAKE, SCOTT & LEE,
March 7. Boston, Mass.

BUFFALO.—There is no change of price in honey since our last report. Demand seems to be a trifle better. Receipts are very light. Fancy white comb, 13@14. A No. 1, 12@13; No. 1, 11½@12½; No 2, 11@11½; No 3, 10@11; No. 1, dark, 10@11; No. 2, 9@10 White extracted, 6½@7; amber, 6@6½; dark, 5½@6. Beeswax 28@32.

W. C. TOWNSEND,
Mar. 8. Buffalo, N. Y.

FOR SALE.—I have a few more cases of comb honey (mostly buckwheat), which I will offer at a reduced price to close out.

N. L. STEVENS, R. D. 18, Moravia, N. Y.

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.

G. W. WILSON, R. R. No. 1, Viola, Wis.

FOR SALE.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Fancy basswood and white-clover honey; 60 lb cans, 8c; 2 cans or more, 7½c; bbls., 7½c.
E. R. PAHL & CO., 294 Broadway, Milwaukee, Wis.

FOR SALE.—Fine extracted honey for table use, in 60-lb. cans. Price for white, single can, 7½c; two or more, 7c. Amber, one cent less.

C. H. STORDOCK, Durand, Ills.

WANTED.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us. EVANS & TURNER,
Columbus, Ohio.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & CO., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

WANTED.—*Extra* fancy comb honey, about 100 lbs. each in Danz and 4¼x4¼ sections, the latter in two-beeway and four-beeway sections.

THE A. I ROOT CO., Medina, Ohio.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.

THOS. C. STANLEY & SON,
Fairfield, Ill., or Manzanola, Colo.

WANTED—Beeswax. We are paying 29c cash or 31 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price. THE A. I. ROOT COMPANY, Medina, O.

Chas. Israel & Brothers

486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

STRAWBERRY PLANTS
and Seed Potatoes.

You can make more money if you plant intelligently. Write and tel us about your soil. We'll send you our FREE DESCRIPTIVE BOOK, over 100 varieties.

NEW STRAWBERRIES

FLANSBURGH & PEIRSON,
Leslie, Mich.

4,000,000 PEACH-TREES

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases, and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address **J. C. HALE, Winchester, Tenn.**

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Hardy, fruitful kinds. Honest values, 5c each. Apple trees, 5½c. Concord grapes, $20 per 1000. Russian Mulberry and Black Locust. $1.40 per 1000. Rambler roses, 25c. $10 orders prepaid. Catalog free.

Gage County Nurseries
Box 647, Beatrice, Neb.

PAGE

If a Heavy Horse

should run into Page 23-Bar Poultry Fence it would stop him, and not damage horse or fence.

PAGE WOVEN WIRE FENCE CO., Adrian, Michigan.

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1000 Note-heads,	**$1.50**
1000 Envelopes, XXX, 6 1-2,	**1.75**

250 of either, $1.00, postpaid. Samples and estimates FREE.

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Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*

A. W. SWAN & CO. Centralia, Kan.

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Our scales make a good line with specialties, implements, machinery, mill supplies, nursery stock, separators foods, etc. Fine catalog, liberal contract, no expense, no experience. Write for full particulars. **Act quick.**

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EGGS from Buff, Barred, and White Rocks; Silver laced and White Wyandottes; Buff Orpingtons; Single-comb, Buff, White, and Brown Leghorns; Black Spanish; Black Minorcas; Red Caps, Silver-spangled Hamburgs. Price list free. Reference, The A. I. Root Co.

The QUALITY POULTRY YARDS, Medina, Ohio.

THE POULTRY REVIEW, containing monthly a comprehensive review of the best poultry papers published; 50c a year; with this paper, $1.00 a year. Before subscribing elsewhere get our clubbing rates.

The Poultry Review, Dept. IX, Bustleton, Pa.

ASTERS

Olmstead's White Commercial: They show no center, grow two feet tall, with blooms six inches across and as white as snow. They bloom first of August and can be distinguished from chrysanthemums only by experts. I have spent half a life time perfecting this Aster. It is a cross between the chrysanthemum and several large Asters, and I am offering it direct to planters so they may be sure of getting the true seed.

Send address for circular, and read "What others say."

It shows a large field in bloom, and so plain you can tell just how they look.

C. H. OLMSTEAD, East Bloomfield, N. Y.

Mr. Olmstead's Asters are all that he claims, being the largest and most beautiful we have ever seen.—EDITOR VICK'S FAMILY MAGAZINE.

Mr. Olmstead sent us a few sample blooms of his Asters and they certainly are the finest thing in that line we ever saw; in fact, I did not before know it was possible for Asters to be grown of such size and beauty.—A. I. ROOT.

1904.

TRY J. W. TAYLOR'S record-breakers. They are three-banded leather-colored Italians. They have broken all records as honey gatherers. I have made a specialty of queen-breeding for ten years to secure the best bees, and now I have them.

Untested, 75 cts., or $8.00 a dozen; tested, $1.25 each; select tested, $1.75; each. Breeders, the best, $4.00 each.

I have three yards, and can fill all orders by return mail. I quarantee safe arrival and satisfaction. J. E. Atchley says the finest queen he ever owned he bought from me. Try one. **J. W. TAYLOR, Ozan, Ark.**

BEE-SUPPLIES EXCLUSIVELY.

A complete line of

Lewis' Fine Bee-supplies, Dadant's Foundation, Bingham's Original Patent Smokers and Knives, Root's Extractors, Gloves, Veils, etc.

Queen bees and nuclei in season. In fact, anything needed in the "Bee-line" at **Factory Prices here in Cincinnati,** where prompt service is yours, and freight rates are lowest.
Special discount for early orders.
Send for Catalog.

The FRED W. MUTH CO.

[We are successors to nobody, and nobody is successor to us.]

51 WALNUT STREET, CINCINNATI, OHIO.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., Medina, Ohio.

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E. R. ROOT, Editor of Apicultural Dep't.
J. T. CALVERT, Bus. Mgr.
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F. J. ROOT, Eastern Advertising Representative,
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Terms: $1.00 per annum; two years, $1.50; three years, $2.00; five years, $3.00, *in advance.* The terms apply to the United States, Canada, and Mexico. To all other countries, 48 cents per year for postage.

Discontinuances: The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

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Column width, 2⅜ inches. Column length, 8 inches.
Columns to page, 2. Forms close 12th and 27th.

Advertising rate 20 cents per agate line, subject to either time discounts or space rate, at choice, BUT NOT BOTH.

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250 lines@	18	6 times	10 per cent
500 lines@	16	12 "	20 "
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1 page	$40 00	3 pages	100 00
2 pages	70 00	4 pages	120 00

Preferred position, 25 per cent additional.
Reading Notices, 50 per cent additional.
Cash in advance discount, 5 per cent.
Cash discount, 10 days, 2 per cent.

Circulation Average for 1903, 18,666.

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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CONVENTION NOTICES.

The Northern Michigan bee-keepers will hold their annual convention March 30, 31, in Montague Hall, No. 127 Front St., Traverse City, Mich. We expect a large number of bee-keepers to attend. See editorial in the *Bee-keepers' Review* for December. Read that, and then come to the convention, and bring your neighbor bee-keepers. A. I. Root will be present, nothing preventing. G. H. KIRKPATRICK, Pres.
Rapid City, Michigan.

The Executive Committee of the Bingham and Fremont Counties Bee-keepers' Association met in special session, and the following resolution was passed:

"Be it resolved that, in the death of Dr. B. F. Jones, our honored secretary, we lose an efficient officer, progressive bee keeper, and devoted friend—one who for several years has made the study of the honey-bee, the raising of queens, and the production of fancy comb and extracted honey a specialty; that we offer our condolence to the bereaved wife and family, and that this resolution be spread upon the minutes of the Association, and that a copy of the same be sent to the family." ALMA OLSON, Sec.
Lorenzo, Idaho, Feb. 20.

Our Advertisers and Advertising.

The attention of our subscribers is called to the change of address of the Plymouth Rock Squab Co. Please notice that they are now located at 2819 Atlantic Ave., Boston. They will occupy much larger and better quarters than before, the change being made necessary by the large increase of their business. See their ad. on page 269 The growing of squabs is exciting much attention all over the country during the past few months.

Years before Mr. Duane H. Nash, of Millington, N. J., whose advertisement appears on page 297, this issue, began to advertise in GLEANINGS, A. I Root wrote the following in "What to Do, and How to be Happy While Doing It." "I prefer the Acme pulverizing harrow to any other I have ever used, because of the cutting motion of the knives, which chop every thing up, but never catch and break the machine, or jerk the horses unmercifully. You can run it over roots or stones or brush, long manure or corn-stalks, and it cuts them to pieces like taking a long butcher-knife and slashing it repeatedly across the article to be worked up fine." Better send to Nash for his booklet.

WHEEL SENSE.

The Electric Wheel Co., of Quincy, Ill., has issued an attractive booklet, setting forth some good practical sense on the subject of wagon wheels. It presents in a forciable manner the advantages of the Electric wheels; shows their strong, substantial construction, and presents the case in such a way that one can hardly fail to be convinced of their value. The proposition is really simple. A low wagon is certainly more easily loaded than a high wagon. A wide tire will not cut into fields and roads, rutting them up as does the narrow tire. A metal wheel made after the manner of the Electric certainly will outwear two or three wooden wheels and save you repair bills as long as they last. We hope our readers will send for the book and read the story for themselves.

NOT IN THE TRUST.

The oldest bee-supply house in the East.
Sells the BEST GOODS at former prices.
Send for Catalog.
J. H. M. COOK,
70 Cortlandt St., New York City.
Succeeded to the business of A. J. King, Dec. 14, 189 .

Slate Hive-Covers.—I will furnish most durable and perfect slate hive-covers, 17x21 inches, at $15 00 per 100. 13x21 inches, $13 00 per 100 In lots of 20, 16 and 14 cts. each. Large lots at special prices.
B. F. AVERILL, Howardsville, Va.

I. J. Stringham, New York,

keeps in stock several car-loads of Apiarian Supplies of the latest patterns, and would be pleased to mail you his 1904 catalog. Bees in season.

Apiaries, Glen Cove, L. I. Sales Rooms, 105 Park Pl., New York.

Very Low-rate Excursions to the West, Northwest, and Southwest via

WABASH

Tickets on sale every day during March and April to San Francisco, Los Angeles, Portland, Seattle, and to intermediate points at proportionately low fares, on which stop-overs will be granted at certain points. Also special one-way, colonist, and round-trip homeseekers' excursion tickets to Denver, Colorado Springs, Pueblo, and many other points in the Middle and Southern States, which will be on sale March 1st and 15th, and April 5th and 19th at greatly reduced rates.

Commencing April 22nd, and daily until April 30th, the Wabash will sell round-trip tickets to

San Francisco and Los Angeles

at a rate of less than one first-class fare for the round trip, with final return limit of June 30th, 1904. Stop-overs will be allowed at and west of Denver on these tickets, which may also be made to read via diverse routes. In addition to this, a stop-over privilege of ten days will be accorded to holders of these tickets at St. Louis upon payment of a fee of $1 00.

For rates and full information in detail apply by letter or in person to

WABASH TICKET OFFICE,
320 Fifth Avenue, Pittsburgh, Penna.

F. H. TRISTRAM,
Assistant Gen. Pass. Agt.

CHARLES HAMILTON,
Passenger Agent.

FARM LANDS

NET $1528.75 FROM ONE ACRE.

one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.

Handsomely illustrated descriptive booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama, sent free. JOHN W. WHITE,
Seaboard Air Line Railway,
Portsmouth, Va.

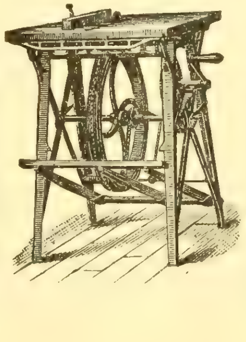
Splendid Location for Bee-keepers.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.



BARNES'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.
Machines on Trial.
Send for illustrated catalog and prices. Address
W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford, : Illinois.

$1 Standard-Bred Queen for 50c

(When taking the Weekly American Bee Journal for one year at $1.00 —$1.50 for the Journal and Queen)

⁂

We are now booking orders for those **Superior Standard-Bred Italian Untested Queen-Bees** that we have been furnishing for several years past, and that have given such excellent satisfaction. We would like to furnish one or more of them to every reader of this paper. When any bee-keeper can get such a Queen, and such a bee-paper as the Weekly American Bee Journal for a year—both for only a $1.50, it would seem that no one would hesitate a moment about ordering.

The Queen orders we expect to fill in rotation, in May or June —first come, first served. Better order now, and begin to read the American Bee Journal at once. If you are not acquainted with the Journal, send for a FREE SAMPLE COPY, and see how good it is.

If you want Queens without the Bee Journal, the prices are as follows: One Queen for $1; 2 for $1.75; or 6 for $4.50.

Address,

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ill.

= 300 Queens Mated =

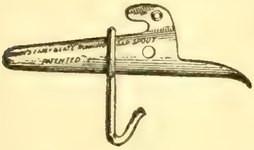
By Using the Bees of Only One Colony.

Only *ten bees* have cared for a queen until she was mated! Virgin queens introduced at any age – often mated the *next day* after they are introduced! No permanent nuclei! No breaking up a lot of colonies into nuclei! No fertile workers. Isolated mating to drones of a selected colony easily secured!

All this has been accomplished, and W. H Laws, of Beeville, Texas, who has enjoyed these advantages for more than a year, will tell all about them in an illustrated article that will appear in the March issue (about March 15th) of the Bee-keepers' Review.

Send ten cents, and as soon as this issue is out it will be sent to you, and the ten cents may apply on any subscription sent in during the year.

W. Z. HUTCHINSON, Flint, Mich.



MAPLE-SUGAR MAKERS,

Don't Miss a good investment.

As horses vary in price according to quality, so do sap-spouts. The GRIMM Spout costs you nothing. The gain of one fourth more sap pays for it. It's a conservative guarantee. Purchaser assumes no risk. Why not venture? Order what you need and return if not as represented. Samples free.

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Circular free. R. S. JOHNSTON, Box 43, Stockley, Del.

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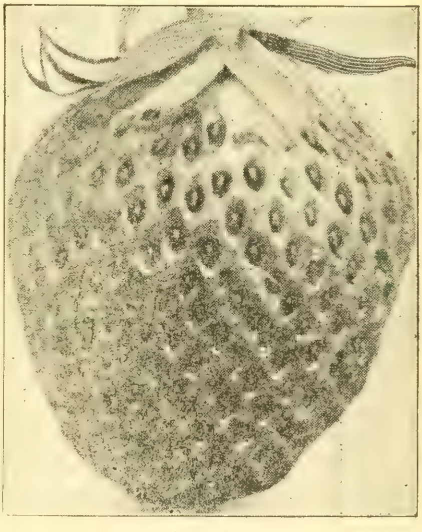
AND HOW TO GROW THEM.



A strawberry book written by the ***"Strawberry King,"*** so called because he discovered the way to develop the fruit organs in a plant and make it grow two big berries where one little one grew before. He grows the biggest crops of the biggest berries ever produced, and the book tells how he does it. It is a treatise on ***Plant Physiology*** and explains correct principles in fruit-growing. It is worth its weight in gold to any fruit-grower. Will be sent free to all readers of GLEANINGS IN BEE CULTURE. Send your address now. The ***Finest Thoroughbred Pedigree Plants*** in the world.

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WANTED.—Twenty-five cents in stamps for 25 T. W. bee-brushes, by mail. Nothing better. They wear too. DAN WHITE, New London, Ohio.

Your Bees Won't Sting You
If You Give Them
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⁂

Everything Known in
BEE-KEEPERS' SUPPLIES.

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WATERTOWN, WIS. U.S.A.

PROMPT SHIPMENTS AS USUAL.

Clarence, Ia., Aug. 19, 1903.

G. B. LEWIS CO., Watertown, Wis.

Gentlemen:—I would like to thank you for your prompt way of doing business in such a season as this when every one is excited. Yours truly, E. W. COE.

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Dovetailed,
Improved Langstroth
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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.

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Stray Straws

By Dr. C. C. MILLER.

PROF. BENTON seems to settle the matter of naming our bees, p. 232, and he is corroborated by Prof. Cook, who says in *American Bee Journal*, p. 165, "the correct name is *Apis mellifera*."

PHACELIA STRAW, according to a report in *Imker aus Boehmen*, was fed almost exclusively as winter food for cows by one man, and the cows gave a good yield of milk. But will American cows eat phacelia?

STENOG, I like your closing sentences about Dzierzon and Langstroth, page 222. The attempt to belittle Dzierzon brings up clearly in memory (A. I. will recall it) the attempt some forty years ago to show that Langstroth was not the inventor of the movable frame. Just as much as Langstroth deserves credit for the movable frame does Dzierzon deserve credit for the parthenogenesis theory, and it's a shame to try to strip him of his laurels when he's now up in his nineties. [See Pickings.—ED.]

ARGENTINE REPUBLIC is reported in *L'Apiculteur* as a country where 150 to 250 kilos (330 to 550 pounds) of honey is the average yield per colony. I wonder—I wonder. [This does not seem so very wonderful when we take into consideration the average yield in some of the other tropical and semi-tropical countries The yields that are secured in Cuba and some of the other islands of the West Indies would, I think, compare very favorably with these figures. When we remember that the seasons in these countries are much longer than ours, it is not difficult to believe.—ED.]

THE REICHSVERBAND of Austria (it isn't as old as our National, but has more than 12 times as many members) has, without aid from government, put up a pile of $600,000 to defend any of its members who get into trouble about their bees, to make good any losses from foul brood, fire, theft, and some other things. This it has done by taking out a policy for ten years for that amount, equally divided among three insurance companies. [I give it up; but by taking the position of a doubting Thomas all along in this matter I forced you to bring out some facts that may take the conceit out of some of us American bee-keepers. If this information has ever before been given to the public through the American bee-papers, I have not seen it.—ED.]

STIMULATIVE feeding often does more harm than good, exciting to flight in bad weather. In *Bienen-Vater* we are told it is because the bees fly out for water to thin the feed, and that, if we feed honey greatly diluted, giving at least half a pint at a time *from above*, bees will not fly out next day in bad weather. [There may be something in this, but not very much, I think. In the summer time, whenever the bees are fed it is always a rule for the fielders to rush out. So large a quantity of sweet coming in all at once gives them the impression that a large amount is available *somewhere* outside. At such times the going-out is not to get water but to find out *where* that sudden supply is coming from. If water were the object they would be going to the ponds, creeks, and watering-troughs; but these are all ignored by them. If we feed in early spring they will rush out just the same. But I will venture the assertion that it is *never* for water.—ED.]

STINGLESS BEES. The colony of stingless bees sent last September from Brazil to the editor of *Bienen-Vater*, Vienna, Austria, in spite of warmed bricks and other means to keep it warm, expired early in January. Although stingless, the little vixens used savagely their powerful jaws in biting, and, instead of carrying out their dead whole, as our bees do, they first bit them in pieces. [You will, perhaps, recall that we had a colony of stingless bees some years ago. They were shipped from Mexico, and we managed to keep them alive till cold weather set in. Our bees did not show a disposition to bite, probably because the colony was too weak when it reached here, and never fully recovered itself. But in Central America there are some varieties or species that bite so furiously and severely that the natives themselves insist that the bees sting.—ED.]

SORRY to learn that a paper package of honey ceases a life of usefulness at the next coming of warm weather, p. 219. A pretty heavy blow that at the paper-package business. [Perhaps I made the statement a little too strong My purpose was to *warn* bee-keepers to be on the *safe* side; for it would be most unfortunate at this stage of proceedings to make a serious mistake and kill out entirely a new method of selling honey that now has a promise of a large future. I know this—that all candied honey, at the approach of warm weather, is liable to soften. Last summer I looked at our own package in paper. It had softened down like warm mush. The honey was oozing through the paper, and it already stuck to the shelf. When it was received from Mr. Aikin it was as hard and dry as a brick. I then looked into some jars of candied honey that were hermetically sealed, and found that they were also soft, but not so soft as the packages in paper. I simply wished to sound a note of warning so that those who are putting up honey in this form will be on their guard. It may be that some honeys would not soften up sufficiently to make trouble; but in any case let us err on the safe side. It would be good policy for all the bee-keepers who put up honey in this form to say to the retailer that they will take off his hands all that is left unsold by June, we will say, and will substitute an equal value of honey in some other form if so desired. The coming season will give us some positive information along these lines; for hundreds and hundreds of bee-keepers are putting up honey in this new form, and, strangely enough, consumers are taking to it very kindly. The very novelty of it attracts attention. They see it on the grocery shelves, ask questions about it, have a curiosity to try it; they like it; order more; and the beauty of it all is that, when our bottled liquid honey does candy, these very consumers will not be crying back, "Adulteration!"—ED.]

YOU'RE RIGHT, Mr. Editor, in thinking that the preference "in this locality" for covers just wide enough meant my own opinion; and until I read p. 175 I didn't know that others differed. My covers are *just* wide enough except some zinc ones that are made wider by a cleat on each side, which cleat, instead of being an actual benefit, is a damage, and I have pulled most of them off. I don't know of any reason why a cover other than a telescope should be any more than just wide enough. Do you? [Yes and no. Our customers say that a cover that projects over the side of the hive allows the water to drop off without seeping back into the crack between the cover and the top edge of the side of the hive. But if the cover is propolized down, as it is in a great majority of cases, then the water can not seep through to do any damage; and, besides, propolis is as good as paint as a wood-preservative. We first made the covers just wide enough to span the width of the hive; but the trade would have none of that. They must be wider, or it would go to the people who make wider covers.—ED.]

GERSTUNG, editor of *Bienenzucht*, deprecates the idea of removing a queen in the honey harvest for the sake of freeing more bees to go afield. He thinks it has the opposite effect, actually delaying field work until their fair share of nursework is done. Admitting the advantage of shrinking the brood-nest when the forthcoming bees will have no more to do, he thinks the advantage more than offset by the decline of activity when the bees have no young brood, and by the lack of August-reared bees the following spring. His plan — which, after all, leaves the colony queenless, although not without the stimulating influence of unsealed brood — is this: Three or four weeks before the presumable end of the harvest, take a frame of brood with the queen and adhering bees, and make a nucleus. Ten days later, destroy queen cells and exchange a frame of sealed brood for a frame of young brood from the nucleus. A few hours before this exchange, kill the queen if it is desired to replace her, and give the nucleus a queen cell when exchanging brood. If the harvest holds, repeat the exchange of brood ten days later. When the supposed highest point of the harvest is reached, return the old queen, or the young queen in her place. I have practiced with satisfaction a somewhat similar plan, with two points of difference: The queen is removed as soon as and *not till* preparations for swarming are found, and the colony is not left queenless more than ten days.

YOU SAY, Mr. Editor, p. 219, that "propolizing at the points of contact between Hoffman frames in most localities is not a serious objection." You don't quite get my point. You called my attention to the metal frame-hanger that would help against the trouble of propolis with the Hoffman. My point was that, whether little or much trouble from propolis, the frame hanger didn't touch the most troublesome part. In a locality where propolizing the Hoffman "is not a serious objection," there would be no need of the frame hanger. In a gluy region the gluing between end-bars is ten times as bad as the gluing on the rabbet, and the metal hanger would leave nine-tenths of the trouble untouched, so the hanger wouldn't be worth while in either case. See? [And *you* do not quite get *my* point either. I will admit that propolizing between the lines of contact of the individual frames is much worse than at the point of support. I have not and do not now take issue with you there; but the point I was trying to make was that *metal* lines of contact would be much more easily separated, and to some extent less propolized, than the same form and shape entirely of *wood*. I still think that the metal-spaced Hoffman would work in your locality better than the regular Hoffman with wood projections. In any locality, a metal-spaced Hoffman that would separate more easily than the regular Hoffman would be appreciated. But there is another fact I did not bring out before. It sometimes happens that the wooden projections on the Hoffman split off when the propolis is dry and hard. That objection could not apply in the case of metal points of contact. There! do I make myself clear now?—Ed.]

Pickings from Our Neighbors' Fields
By
"Stenog."

They've chopped my automobile down,
  And simply call it auto;
And now they've boiled the spelling down,
  And give us just a' 0°

* * *

A French advertiser says, "Whoeverw ill prove that my honey is bad for the health will receive two pounds free."

* * *

In the *British Bee Journal* the editor, Mr. Thos. Wm. Cowan, pays a touching tribute to the memory of Capt. J. E. Hetherington, whom he visited in 1887.

* * *

The eyes of European bee-keepers are so intently fixed on the United States that I find a good part of their literature is largely a discussion of our methods. That's a good idea on their part.

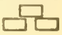
* * *

In a French exchange, *Progres Apicole*, a writer speaks highly of a smoker fuel made of cotton waste, such as is used for cleaning machinery. He makes a wad of it, like a link of sausage, rolling it together rather loosely, and just large enough so it will slip into the barrel easily. It burns slowly and for a long time. Two pounds of it can be made for a dime.

* * *

A friend wants to know what *garage* (p. 230) means. It comes from the French word *gare*, a railroad station, commonly called a "depot." The word is now applied to a place where automobiles are stored and repaired — a general rendezvous in cities for autoists. It is generally called *garridge*, to rhyme with *carriage*. It should be pronounced "gah-*razh*." The word has come to stay, being now anglicized.

* * *

A bee-keeper in Canada, writing to the *Australasian Bee Bulletin*, says he prevents robbing by piling three bricks thus  in front of the hive-entrance, the lower ones being just far enough apart to admit two bees at once. The bees are much averse to running into such long passageways, and soon conclude to get into safer business. We are not told how long the bricks are kept in that position.

* * *

Progres Apicole says the Bee-keepers' Society of the Aisne, France, is making use of illustrated postal cards to draw the attention of the public to the good quality of honey as a food. One picture now before me represents a little girl giving some honey to a boy younger than she is—evidently the baby. Under the picture are the words, "For our use we prefer, in place of common bonbons, honey, so pleasant, from the generous bees." It is certainly a good way to teach.

* * *

About a month ago a writer in the *British Bee Journal* made a vigorous protest against a certain firm advertising "honey without bees." The matter was referred to the company in question, and the point of their reply is contained in the following paragraph:

> It seems to us quite natural that to bee-keepers the description, "Honey without Bees," would appear to be prejudicial to their industry, and consequently we are willing to refrain from advertising the product in this way from henceforth.

False statements in advertisements need looking after on this side of the ocean.

* * *

The *Australasian Bee-keeper* finds the following in a German bee-journal. It runs quite athwart American doctrine:

> Brossard is a follower of Wygandt. He heats his bee-house in winter; says he may warm his bees up to 86 degrees F. and not a bee will fly out, providing they have water given them. When I come to the apiary and find bees flying out when the weather is not suitable I know they have no water in the hive, and I must supply them.

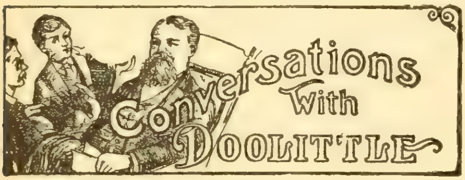
From the same source I learn that Otto Schultz, one of the most voluminous bee-writers in the world, has this to say concerning the crystallizing of honey:

> Take honey from combs that have not been sealed, and fill some glasses. Wait a few days or till the combs are sealed. Now extract, and with the product fill some more glasses. Seal these, also the others. Take another quantity of the same honey as last lot, heat it to not over 122 degrees F., allow it to cool, and fill another number of glasses. Seal them as the others, and label all of them. Store them in the same place. Lot No. 1 will crystallize first, lot No. 2 after a time; lot No. 3 will remain liquid a long time.

Gerstung, the editor, adds, "Crystallization will be deferred by stirring the honey occasionally." It seems to hasten it here.

* * *

In Stray Straws in this issue, Dr. Miller speaks a word in behalf of Dr. Dzierzon as the real discoverer of parthenogenesis, perhaps fearing I meant to abate somewhat, in what I said in the previous issue, from the glory that belongs to the venerable man. Probably I should have interjected a little more of my own opinion, which, generally, I do not like to do. Whatever benefit that theory has been to the world is due exclusively to Dzierzon, for he alone discovered it so it would *stay* discovered. Columbus was no less the discoverer of America because he found men here who discovered it long before he did. His discovery consisted in discovering the globe itself, and in proving that it is round and can be circled; and so Dr. Dzierzon's theory involves results far more reaching than any thing the mere name implies.



PLANTING FOR BEES.

"Jones came over to talk with Doolittle this evening. Has Doolittle the time to spare?"

"Well, I had a little writing to do, but that can be laid aside for a time. What was it you wished to talk about, Mr. Jones?"

"Bee pasturage is getting scarce around where I live, or, rather, my bees have done very little for the past two years, and I thought the trouble was on account of a lack of pasturage, and I wanted to ask you what is the best kind of tree to plant for bees. I have been thinking of planting quite a few trees in the spring, if I can find out what will be best."

"In our northern locality there is no tree that gives as great a yield of honey as the basswood; and were I to set out any tree for honey alone, the basswood would be that tree. This tree is also very valuable for lumber; but, unless planted too closely to do the best for honey, lumber of little account could be gotten from it, on account of its growing so low and branching."

"I had thought of the basswood; then I had also thought that, if I could plant something that would give me fruit and the bees honey, it might be better. What about this?"

"For fruit and honey combined, there is probably nothing better than the apple. Some years, when the weather is just right during its blossoming, it will yield honey nearly if not quite equal to basswood as to quantity, but the quality is not equal to either clover or basswood."

"Apple blossoms quite early does it not?"

"Yes; and coming thus early is the reason that we seldom have good weather for the bees to work on it from start to finish; but as it blossoms at a time of the year when a little stimulation in the shape of nectar from the fields is of the greatest value to the apiarist in populating his hives with brood, which will arrive on the stage of action just in time to take advantage of the honey-flow from white clover and basswood, it makes the honey which does come from it of double value. So if I were to plant trees for honey I would include the apple as one of the trees, as it possesses the advantages of giving a fairly good honey, giving said honey just at a time when it is of the greatest benefit to the apiarist, and gives, in addition. a kind of fruit that is desired almost universally."

"Is there any other tree you would plant?"

"I hardly think so; and, to be candid, I am not sure that I would plant any trees very largely for honey, having that as the main object, unless I were looking toward generations yet unborn; for there is little use of setting out any tree with the expectation of gaining any immediate benefit; and if set out for those who are to come after, in all probability the place would change occupants, or the occupants conclude that the land could be occupied more profitably with something else like cabbage, wheat, or potatoes, when, in either case, our labor in planting would have been mostly in vain, with people like you and me who are on the western slope of life."

"Well, I realize that what you say is quite true; but I think I will put a few basswood and apple trees in next spring. The apples may help me some unless I am called away too soon. I had also thought of sowing some seeds for the bees. What would be the best along this line?"

"White clover, alsike clover, buckwheat, sweet clover, rape, mustard, pleurisy-root, spider-plant, Chapman honey-plant, golden honey-plant, etc., in about the order named; but with the exception of the three first, I do not think I would sow any of them, only by way of experiment or as a source of amusement, unless there were waste places now growing up to foul weeds; for I do not think that it can be made to pay to occupy good tillable land with any kind of plant that gives nothing of special value except honey."

"Why?"

"Because it takes tens and scores of acres of any of these kinds of plants for the bees to gather enough nectar to store a surplus of any account therefrom. As hinted at, it may pay to sow all waste places with them, as such plants would take the place of burdocks, cockleburr, etc., which are a nuisance through the burrs and noxious weeds coming from them."

"Do you include sweet clover in these remarks?"

"As to sweet clover, with me I have failed to get it to grow on our muck and hardpan soil, and I have sown large quantities of seed on old fence-balks, by the roadside, on the edges of gulfs and ravines; in short, have taken it in my pockets for years, when I went on hunting and fishing tramps, scattering it in places where nothing but noxious weeds ever occupied the ground, and, with the exception of places where the soil was of a sandy, gravelly nature, none of this seed has ever brought forth any but sickly plants, which would give up and die a year or two later."

"This is news to me, for I had been told that sweet clover was classed as a weed by the authorities."

"Yes, I know it is so classed; but the 'why' of such a course has always puzzled me, for here in York State it is far more easy to kill, even on the sandy and gravelly soils it will hold to, than any of the other kinds of clovers, none of it ever being seen in cultivated fields, while white and alsike clover persist in growing in fields and gardens, with a tenacity which is often very provoking, especially in beds of strawberries."

"Of the two clovers which you have mentioned, and the buckweat, which would you prefer to sow?"

"Each and all of them, as each one has its place. But as all our farmers are familiar with, and often sow acres with them, I have always thought it best to encourage the farmers about me to sow these crops, for it is only where they grow by the hundreds of acres that much profit accrues to the bee-keeper."

"Do the farmers sow much white clover?"

"Not in this locality, for it is not necessary; for, after it once obtains a foothold, it propagates itself, and the farmers do not try to eradicate it, owing to its value in pasture land and for hay. Alsike clover does not hold to the land quite as well as the white; but as it is more valuable for hay than the white variety, it is so much desired that very many of our farmers sow it now, and the bee comes in for her share wherever sown."

"How about the buckwheat?"

"Of late years the price of that grain has been so good that the farmers need no coaxing to get them to sow it. At the close of the honey harvest from this source, if a few boxes of honey are handed out to those who sow the largest acreage of this grain, telling them that there is a sample of the honey that the bees secured while they were fertilizing the buckwheat flowers so that the good yield of grain they had obtained was the result, it brings about a good feeling, and causes a larger acreage to be sown the next year. Buckwheat in most localities is now a very paying crop for the grain it yields, while the honey from it finds a sale in market at remunerative prices, considering that it comes at a time of year when the bees are all built up strong of themselves, so that there is no need of stimulative feeding and coaxing, which is often required to get them in condition for the harvest of white clover coming early in the season."

"Well, I will be going now, and not hinder you from your writing longer."

Editorial
By E.R. Root.

FROM present indications the bees will have a favorable spring. It is generally known that it is more difficult to "spring" the bees than to winter them. Since the editorial notice elsewhere, regarding wintering, was written, we have received a few more reports that are very discouraging; but they are mainly confined to parts of Ohio, Michigan, and New York, and always to outdoor-wintered bees.

INDOOR VS. OUTDOOR WINTERING.

THIS winter will force to the attention of bee-keepers the question of whether or not they should winter indoors. Doolittle has always followed a very safe plan, putting half of his bees on summer stands, packed, and half in a cellar. If it is an extremely warm open winter, the outdoor bees will probably fare better. If it is very cold, and continues to be so, with a bad spring, the indoor bees will come out ahead.

Every bee-keeper should study his own locality, and then decide, by experiments which he may make, which will give him better results, year in and year out. A good house-cellar, darkened and shut off from the main cellar, will usually give very good results — enough so for one to make a comparative test between the indoor and outdoor plans.

E. F. PHILLIPS ON FERTILIZATION.

I DESIRE to call special attention to a very interesting article in this issue, by Mr. E. F. Phillips, of the University of Pennsylvania, the scientist who spent some time here at Medina working on the general subject of parthenogenesis. He had previously made a special study of the compound eye and several other portions of insect anatomy. At my request he has prepared a series of articles, the first of which is given in this issue. He has the special indorsement of Dr. Conklin, of the University, and his work has been viewed with much interest in scientific circles, more especially on account of the original work he is doing in unexplored fields. He recently read a paper before the Philadelphia Academy of Sciences. A representative of our company was present, and he reports that Mr. Phillips was plied with a great variety of questions, showing that the scientific men were greatly interested in the developments he laid before them.

In presenting these articles I have perfect confidence that Mr. Phillips has not given us hearsay evidence, but carefully digested thought-out science, based largely on original work and investigation of his own. The queen-breeder may well read with care the series begun by him in this issue.

ANOTHER NEW EDITION OF THE A B C—THE 100TH THOUSAND IN THE PRESS.

THERE has been such an enormous run on our A B C of Bee Culture that the last 10,000, issued from the press about a year ago, is well nigh exhausted. We are hard at work upon a new edition, but the new books will not be ready until some time in September. We suggest that all dealers purchase no more copies than they can dispose of before then. In the mean time, many of our friends would prefer perhaps to wait for the new edition, which will have many additions. It will contain a large list of new honey-plants, and many of the articles will be entirely re-written to conform to the progress that has been made during the last few months. Take, for example, the subjects of "Candied Honey," "Extracted Honey," and "Queen-rearing." Many new facts have been developed, and these will be incorporated in new articles. Every year develops short cuts and new practices.

This new edition will reach the 100th thousand mark — certainly a large sale when we consider that there is scarcely one bee-keeper to a community.

ANOTHER KINK IN CUTTING CANDIED HONEY INTO BRICKS.

OUR Mr. Jesse Warren, spoken of in our last issue, who has been so successful in cutting candied honey up with a wire, page 224, has now gone one step further. He runs a current of electricity through the wire, heating it up to 110 or 120°. This greatly reduces the labor of cutting, and at the same time gives chunks that are mathematically true, and as smooth and clean as a piece of polished marble.

Everybody is delighted with our brick honey; and even in this town of Medina, where bee-keeping represents such large interests, residents have asked how it is that we can turn liquid honey into solid like like this — not even supposing it to be candied honey, for, indeed, it doesn't look like that article. They have gotten the idea that by some process or preparation we take ordinary honey and solidify it. The old prejudice against granulated honey does not enter into consideration, because here is something that is not mushy nor mealy, but a smooth solid brick almost snow-white. The wrapping of transparent paraffine paper greatly enhances its appearance and selling quality.

THE OHIO FOUL-BROOD BILL HELD UP IN SENATE COMMITTEE.

THE bee-keepers of Ohio need to write to their Senators at once, urging the passage of the foul-brood bill which passed the House and is now in the committee of the Senate, where it looks as if there were a disposition to hold it up. From some advices received we are fearful that a majority of the committee are not inclined to report the bill to the Senate at all. The Ohio bee-keepers should write to their Senators, Senate Chamber, Columbus, Ohio, at once, to see the members of the Agricultural Committee, and urge them to report on it at once. Delay is dangerous just now, when so many measures are on the calendar. Also write Senator R. W. Dunlap, Chairman of the Agricultural Committee, Senate Chamber, Columbus, O., urging the importance of the bill; that *your* interests will be jeopardized if the measure is not passed, etc.

PREVENTING HONEY FROM GRANULATING BY THE USE OF GLYCERINE.

OUR experiments have been going on as spoken of in a late issue. We put up a series of samples of alfalfa honey in paper bags. Some contained the clear honey; others one per cent, others two per cent, and others three per cent of glycerine. During very cold weather they all remained clear, as reported; but since the weather has moderated, alternately cool and warm, the samples without glycerine have candied. Those containing one per cent have granulated partly, while the two and three per cent mixtures have remained perfectly clear. Whether they will continue to do so remains to be seen.

As I have before pointed out, a mixture of glycerine could hardly be called adulteration, because this product is about ten times as expensive as ordinary honey. Naturally enough, if it were used at all it would be in small percents and for the purpose of preventing granulation — something that would be perfectly legitimate and proper. But there is one possible objection to the use of glycerine, in that it may slightly affect the flavor of the honey. If so, it will bar out its use.

STINGS — ARE THEY AN ACTUAL ASSET TO THE BEE KEEPER?

I WONDER how many bee-keepers there are who, if they could, would actually render it impossible for their bees to sting. I will admit there are days when one who has been stung pretty viciously wishes there were no such thing as stings in his business. It would be a great convenience to be able to open a hive without smoke, and without cautious deliberate movements; but is it not true that these same stings, which are sometimes an annoyance to us, serve the very useful purpose of protecting our property to an extent that more than offsets the inconvenience at times? As it is now, there is *comparatively* little trouble from thieves and mischievous boys, even when the bee-yards are located some distance from any dwelling.

And then here is another point of view: If our bees had no stings, is it not possible that everybody else would keep bees in his own back yard, the same as many persons keep chickens? If so, we should have more competition and lower prices. There are persons who, if they were not deathly afraid of stings, would make hot competition. Would we remove the stings from our little defenders who give us bread and butter, rendering them perfectly helpless and harmless?

And after all, when we use a good smoker, and thoroughly understand the habits of our pets, are the stings an actual hindrance in getting a crop of honey? Is there any real excuse for getting stung more than four or five times a day? Indeed, is it not possible to work day after day without stings when one is properly clothed, veiled, and protected at the wrists? I remember I once worked every day in the yard for a period of nearly a month, without a single sting; but I had pure Italians of imported stock—the gentlest bees, in my mind, of any in the world.

ONE SERIOUS OBJECTION TO THE HOFFMAN OR ANY METAL-SPACED FRAME.

In my footnote to the last Straw in this issue I see I failed to cover one important point—namely, that *metal*-spaced Hoffman frames would be very objectionable to the extracted-honey man on account of the danger of dulling the keen edge of the uncapping-knife, unless it were held so carefully and operated so slowly as to increase very materially the expense of uncapping. The same thing applies to any of the metal-spaced frames, the Dr. Miller nail-spacer included. Indeed, I do not know of any extensive extracted-honey producers who find it practicable to use metal spacers, all because of their interference with the edge of the uncapping-knife.

Dr. Miller and a good many others say they are producers of comb honey; that they do no extracting, and therefore never use an extracting-knife; and they ask, with some show of reason, why they shouldn't use a frame that suits their convenience, even if it is objectionable to the other fellow.

HEAVY WINTER LOSSES REPORTED FOR OUTDOOR BEES; THE INDOOR BEES COMING OUT WELL.

In response to my request in our last issue, for reports as to how the bees were wintering, a large number of our friends have responded, so we are able to present a very good birdseye view of the situation all over the country except points west of the Rockies.

There will be heavy losses, just as I feared. A large number report from 50 to 75 per cent of the bees dead—some all dead. New York seems to have sustained the heaviest losses; then next in order I would place Michigan, Ohio, Pennsylvania, Indiana, Wisconsin, and the New England States. Illinois does not seem to have had very severe losses, although some bee-keepers have had a good many bees die. Iowa seems to show up well. In Missouri, and in most of the States west of the Mississippi and east of the Rockies, the winter has been very favorable, and the bees are in prime condition. There have been some losses in West Virginia, but most of the other States south of the Ohio River will show good wintering.

But now let it be understood, the places where losses were very heavy seemed to be confined almost entirely to outdoor-wintered bees. I do not remember to have had a single report out of the large number received when there was bad wintering in cellars or repositories. A few bee-keepers in all the regions where losses have been extremely heavy report excellent wintering outdoors. Among the number is J. B. Hall, of Woodstock, Canada.

Whether these losses will affect the clover market next summer remains to be seen.

Since the first of March the weather has moderated very materially over the country—just enough to give occasional flights in warm localities, but cool enough to prevent brood-rearing going on to any extent.

WINTERING IN THE MACHINE-SHOP CELLAR; IMPORTANCE OF VENTILATION.

Some question has been raised whether it is advisable or desirable to ventilate a bee-cellar at night during moderate or muggy weather, closing the doors in the morning. We have been pursuing that very policy with our bees wintered in the machine-shop basement. And what are the results to-day? Appearances indicate that the bees are coming out in fine condition. The dead ones on the cellar bottom can almost be counted, so few are they. The clusters are quiet, clean, and healthy, and contentment reigns supreme, notwithstanding the temperature outside to-day is about 50. We have tried this over and over; and if we do not ventilate during warm spells they become uneasy.

Can it be we are mistaken in this belief that ventilation is an important factor in cellaring bees? I can hardly see how it is possible. The results, after several winters, are so gratifying that I am rather inclined to the opinion that we shall winter indoors exclusively in the future. So quiet have the bees been this winter it has not been necessary so far to carry them out and give them a flight, and return them, as we did last year.

I might say in this connection, if one finds his bees uneasy, and can do so, let him carry them out on a warm day when they can fly, and take them back at night.

I can only regret that we did not have all of our bees in the cellar this winter. If we had done so, I imagine we should have had stronger and better colonies. We expect to keep our bees indoors for a month yet.

REFRESHING FAIRNESS.

A short time ago the great paper, the Chicago *Inter-ocean*, in one of its weekly editions published a statement to the effect that a great deal of comb honey in the market was manufactured. A protest was made by Mr. G. W. York, President of the Chicago Bee-keepers' Association, and also by our Mr. A. I. Root. The latter called attention to the fact that he had had for years a standing offer of $1000 for a single pound of manufactured comb honey, without a taker; that the Department of Agriculture through its apiculturist, Prof. Frank Benton, had repeatedly denied statements of this kind. The publishers wrote a very nice letter, acknowledging the receipt of the correction, sending a copy of their paper, giving the letter of A. I. Root in full. In the letter received the editor said he was guided by an old farmer of experience, who believed that manufactured comb honey was on the market; but in accordance with a rule of the *Inter-ocean*, long since in force, to be fair to all parties, he thought it but proper to make the correction.

Prompt denials, couched in courteous language, will go a great way in nullifying the damage made by these false statements. Whenever statements of this kind appear they should be promptly answered.

GENERAL
CORRESPONDENCE.

THE SHALLOW HIVE AND FRAME.

Objections to Such Hives Not Due to the System but to Faulty Construction; Their Advantages.

BY J. E. HAND.

I notice on page 24 you ask for reports from those who have tried the shallow sectional-brood-chamber hives. I have used such hives for the past fifteen years in the successful production of comb honey. At the present time I have 130 in use. I am a firm believer in the great superiority of the shallow frame, and the *very* shallow frame. A frame six or seven inches deep is too deep for the best results in my location. One reason is that they do not admit of that extreme contraction which forces all the white honey into the sections; and another reason is that the queen is not inclined to pass so readily from one section to another in so deep a frame. The frame I use and prefer is 4⅞×17⅝, outside measure. Brood-chambers and supers are alike and interchangeable. Wide frames and fences are used in the supers, with full sheets of foundation in the sections, and only inch strips of foundation in brood-frames.

I have proven to my entire satisfaction, by a comparison of shallow and deep frames used side by side for the past fifteen years, that the very shallow frames not only winter better, and build up faster in spring, but they will produce more bees to the square inch than any deep-frame hive; and by their extreme contraction the bees are compelled to put all the honey in the sections.

I believe most of the objections to these hives have been due to the improper construction of the same, and not to the system itself.

I am well aware that these hives would not be best for the careless bee-keeper; but for the practical honey-producer who will take advantage of the principles for which these hives are especially constructed they stand without an equal. Especially is this true in the production of comb honey where the honey-flow is short and sharp, or rather poor.

The use of these hives practically does away with all handling of frames, enabling the honey-producer to handle more bees and to produce more honey. I clip all my queens, cut out queen-cells, and perform all necessary work, without removing a single frame. I have no time to handle frames or dummies, followers or wedges. The proper manipulation of these shallow brood-chambers at the right time will practically prevent swarming.

Should there be any swarms they are hived in a single section of shallow brood-frames, with plenty of section room for the largest swarm, and practically all the honey will go into the sections, not next week, but right now. These hives are in pairs; and as soon as the surplus is removed they are united by simply placing one on top of the other. This gives plenty of workers for any fall honey that may come, and rarely has to be fed for winter.

A frame of dry comb should be placed in these contracted hives to prevent pollen in sections, and a queen-excluding honey-board will prevent brood in sections. I have no trouble along these lines. In hiving swarms in these contracted brood-chambers an empty section should be placed underneath for a few days to prevent swarming out, as they are liable to do if given only one section at first.

By expanding these hives to the fullest capacity of the queen, up to the honey-flow, a large force of workers is produced; and by extreme contraction at the beginning of the honey-flow all the honey is forced into the sections.

Expansion and contraction are the prime factors of successful comb-honey production in my location, which is a very poor one.

Birmingham, O.

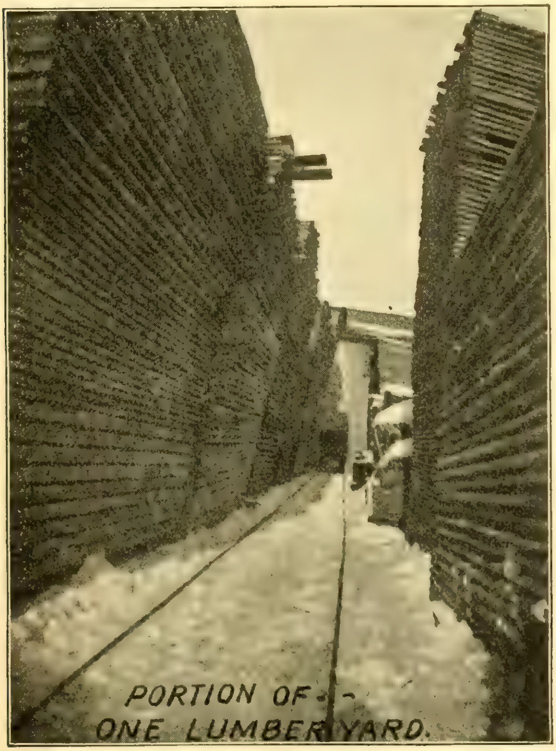
[Along in the early 80's, about the time I first took charge of the bee department of this journal, the subject of sectional brood-chambers (or, as some called them, shallow hives) was discussed pro and con. Many of the arguments that you advance in favor of them were advocated then. So far as I know, all or nearly all who used the shallow hives years ago are still users of them, and believe they are labor and time savers. But there is a conflict of opinion as to how deep the brood-nest should be, and how the frames should be adjusted in the hive—whether with closed ends or open ends; whether with closed ends *close*-fitting or closed ends *loose*-fitting.—Ed.]

THE G. B. LEWIS CO.

President and Interior Factory Views.

The following write-up with the illustrations of the G. B. Lewis Co.'s manufacturing plant appeared in the *American Bee Journal* for Feb. 18. We take pleasure in presenting the same in our own columns, not because we are interested in their business financially (for we are not), but because we are always glad to recognize an honorable and fair competitor who is hustling for business everywhere.

After the traveler, bound for St. Paul, leaves Milwaukee he sinks back in his comfortable seat bidding farewell to all signs of activity until he shall reach his destination in the morning. As he leaves Watertown Station and crosses the Rock River, he sees on its banks a large building lighted up by thousands of electric lights, with smoke issuing in dense volumes from its chimneys. He hears a mighty rumble of machinery above the rush of the train, and in an instant he is past. This great building which the traveler has seen but for a moment, with a large warehouse, office-building, and three immense lumber-yards near by, comprise the bee-hive plant of the G. B. Lewis Co., one of the two largest in the world, given over to the exclusive manufacture of bee-keepers' supplies, known far and wide to the honey-producing population of this country, Europe, and the entire world, and yet never heard of by many at their own door, who are still strangers to the busy bee.



PORTION OF ONE LUMBER YARD.

Five floors compose the main factory. A miniature railroad runs into the ground floor, transporting the lumber in its early stages from the yards to the planers. In this department the wood is partially prepared, being planed for hives, polished for sections, and by means of an electric elevator is carried to the floors above, where operations are completed later on.

GEO. C. LEWIS, PRESIDENT.

On the next floor below is found the iron-working department where the boring is done, saws are kept in shape by help hired for this purpose alone, and where special machines are constructed.

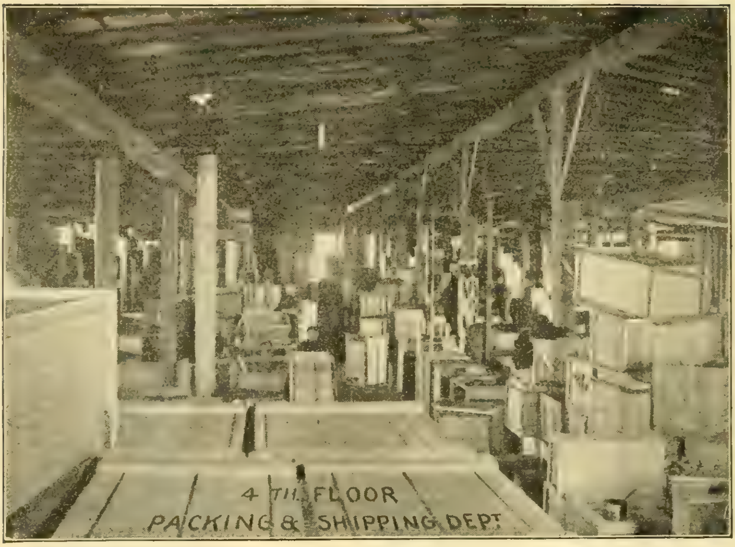
On the third floor is found the bee hive department, where hundreds of saws sing from early morning till late at night. Here the hive parts are made.

On the next floor above, the long basswood strips are sawed into correct lengths, and girls seated at benches sort these into different grades. The sections are also manufactured, crated, and marked here, and finally sent down a long chute to wagons below, where they are put into storage or loaded on trains. In this portion of the factory are also made the woven wood and wire boxes in which bee-supplies are packed. This method of packing has characterized the Lewis shipments for years.

The fifth and top floor is given up exclusively to the packing department, 20 000 square feet of floor being used for this purpose. On this floor is also found the library of the G. B. Lewis Co., where every book known to the bee student is for sale. Here comb foundation by the ton is packed into neat boxes, ready for shipment, and every other device that the bee-keepers can possibly want is on hand in large quantities.

This large industry did not spring up in a night It represents the efforts, the study, the labor, and the persistence of over a quarter of a century. Thirty years ago the late Mr. G. B. Lewis, then a young man, engaged with his brother, Robert E. Lewis, in the business of making sash, doors, and blinds. In those days bee-keeping was not a specialty. A farmer here and there kept bees, and made, after a homely fashion, his own hives and other appliances. Occasionally one would come to the shop of the Lewis Bros. and have a few hives made, and from this small acorn of crude carpentry grew the mighty oak of perfection in the machine-made bee-supplies turned out by the Lewis Company to-day.

In 1878, Mr. Chas. E. Parks came into the business, Mr. Robert Lewis having retired eight years before. In 1890 the business was incorporated, and ever since



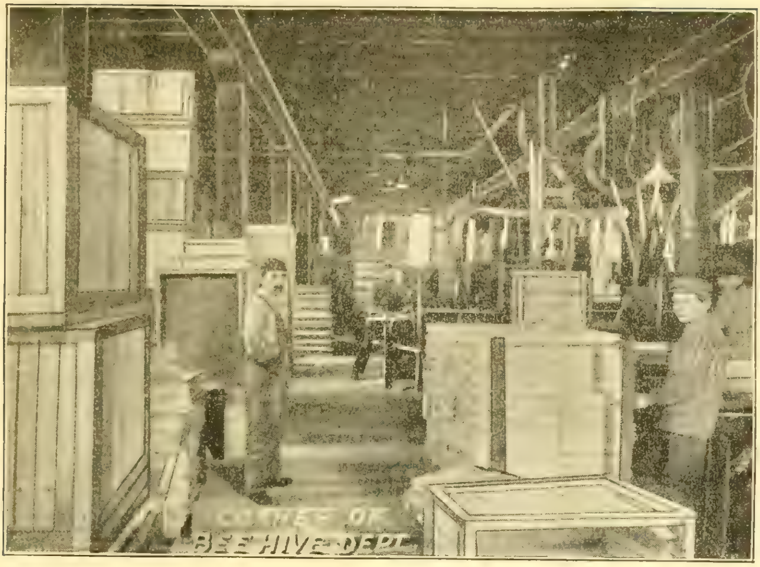
has been known as the G. B. Lewis Company. Mr. Parks proved a most valuable acquisition to the firm, and remained actively interested until his death, in 1895. He was a man of great ambition, a mechanic of the highest type, and by his inventive genius greatly improved the methods of manufacture. He was also the originator of many new machines, and finally invented what is now the well-known Parks patent woven-wood and wire shipping and packing box. Owing to his successful efforts in this latter venture, he was sought by promoters throughout the United States, as well as England and France.

The plant is situated in the garden spot of Wisconsin. Surrounded by nature in its most beautiful form it rests—peaceful without, though most active within—on the west shore of the river, and, with its tall smoke-stack and piles upon piles of lumber, presents a most picturesque sight. Adjacent to the factory the beautiful Rock River dam rushes and rumbles in summer-time to the aid of the great engine, until its rumble, growing fainter and fainter, loses itself in the distant fields beyond where it mingles with the hum of the bees that profit by its toil. Conveniently located is this large industry, easily accessible to the lumber regions of Northern Wisconsin and Minnesota. In the year 1903, 800 cars of basswood, elm, poplar, and pine were shipped into Watertown and switched on to the G. B. Lewis Company's private tracks. To the average layman this seems enough wood to supply sufficiently the bee-keepers of a continent.

To arrive approximately at the business that is done by this company in a fair season, the following facts covering the year just past may be of interest: 50 carload orders alone, and 10 000 smaller orders as well were entered and shipped; 10 tons of comb foundation, thousands of hives, and 15,000,000 sections were sold. The sections alone, if placed unfolded in a straight line, would more than reach from Chicago to San Francisco.

This concern now occupies in the business world a

MAKING PACKAGES
FOR BEE SUPPLIES.



prominence envied by many, and enjoys a reputation justly earned. Its success is largely due to the modern and liberal methods employed by its officers, who exemplify the old adage, that "Liberality begets liberality." At the helm of this institution is found Mr. George C. Lewis, its president, who has had the active management of the business for years. Mr. Lewis, whose portrait appears in this issue, is the son of the late G. B. Lewis. He is a young man of rare business sagacity, energetic, of high integrity, and thoroughly alive to the best interests of his company and its customers. George C. Lewis is well known, and occupies a position of prominence among the leading manufacturers of bee supplies.

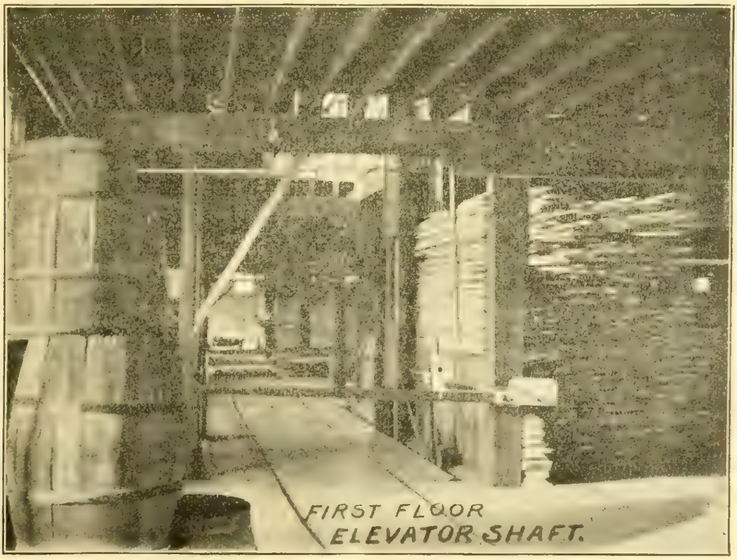
The Lewis Company gives employment to over 100 people, and now, while the flowers and buds have not yet arrived, and the bees are still sleeping, and the ground is covered with snow, all hands are working, toiling, sweating. Day and night must they labor, office and factory alike, and voices are even now heard calling loudest of all the jobber, the wholesaler next, and even the murmur of the bee-keeper himself is heard in the distance, increasing as spring approaches until it drowns out the noise of his swarming bees.

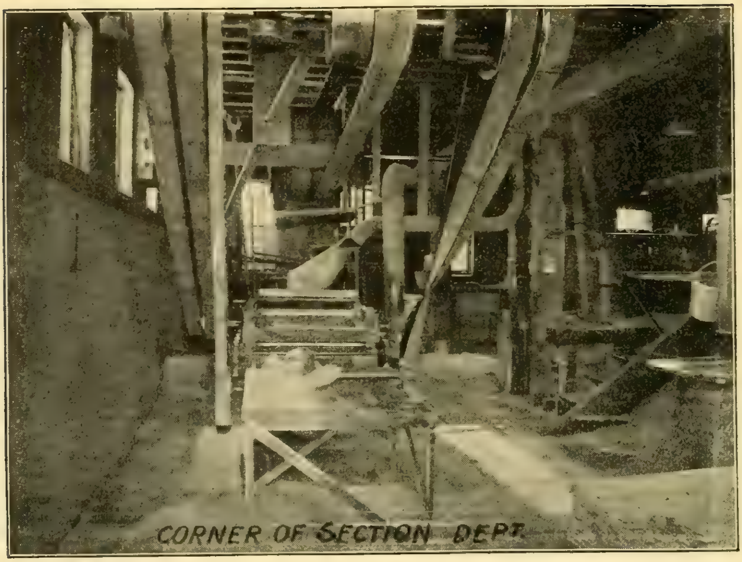
Having been in this hive of industry, we can personally testify to its greatness and superior qualities in every way. G. B. Lewis are, and have been for years, among our regular advertisers. Their goods and honorable dealing testify to their popularity as well as reliability.

VEGETABLE PHYSIOLOGY.

BY PROF. A. J. COOK.

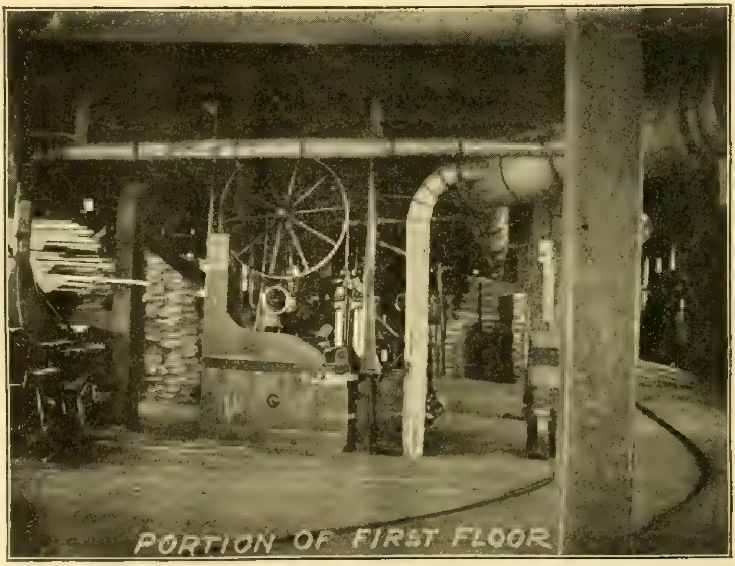
I was much interested in the article on vegetable physiology, GLEANINGS for Jan. 15. While I recognize the fact that nega-



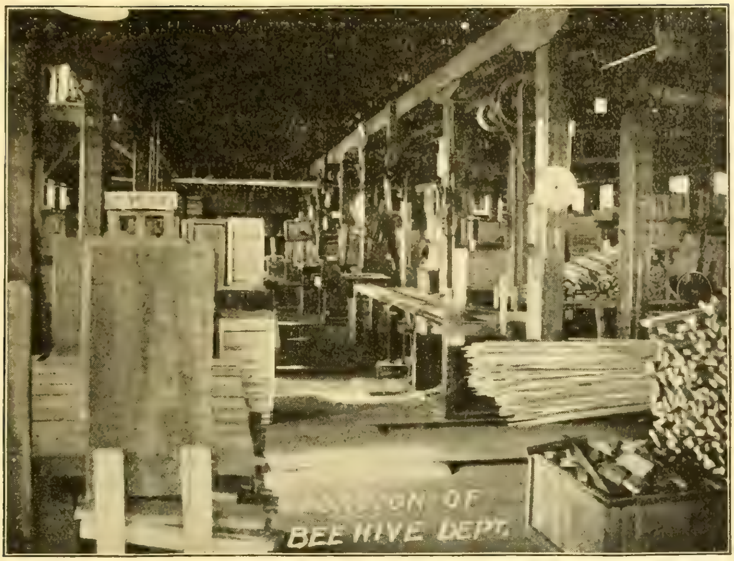


CORNER OF SECTION DEPT.

tive testimony is never to be regarded as very conclusive, yet I have such a preponderance of such in this matter of nectar secretion by plants outside of floral or extrafloral glands that I must express much doubt in the matter. I have been looking intently now for many years to gain evidence that plants secrete nectar over the general surface of either twigs or leaves. I have never seen any such evidence. I believe the fungus ergot does secrete nectar. If so, it contradicts the statement made in the article that chlorophyll is necessary to the formation of nectar. Ergot is one of the fungi, and has no chlorophyll in its cells. I am quite of the opinion that all nectar secretion by plants is either in the flowers or from nectar-glands outside, as seen so well in the partridge pea and even in the cotton-plant. In all other cases, so far as I have observed, the so-called honey-dew comes from insects. The late Mr. Meahan and I had a warm discussion some years ago on this subject. He contended that the honey-dew came from the general surface of the plants, and was a product of them. I urged the proposition that it was secreted by either aphids or coccids. I besought Mr. Meahan to send me specimens, which he was kind enough to do. The specimens



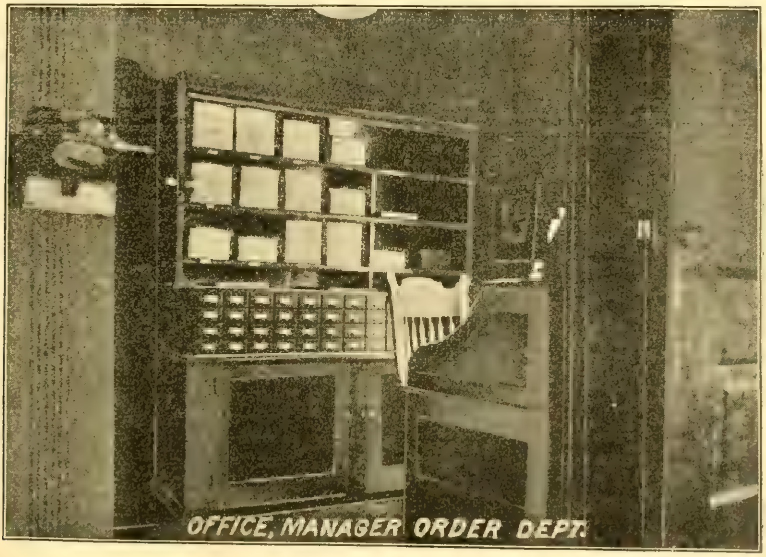
PORTION OF FIRST FLOOR



SECTION OF BEE HIVE DEPT.

were pine twigs from Oregon, and these were heavily coated with solid incrustations of sugar. I was much pleased on examining them to find very strong circumstantial evidence, almost as good as finding a fish in milk. This evidence consisted in the finding of the cast skins of aphids scattered among the sugar deposits. I think Mr. M. was convinced, as he dropped the discussion at once and never took it up again.

In visiting Clouds' Rest, one of the highest peaks in the Yosemite region, we found magnificent pines crowning the lofty summit. It was about midday as we passed under these great trees. As we looked up through the foliage, great drops of delicious honey-dew were almost multitudinous. So plenteous was this that it was easy for us to get enough for thoroughly sampling the nectar. The ground beneath was thickly strown with the same liquid sweet. At first the lower branches which we could reach from our horses showed no insects, though the honey-dew was very plenteous. A closer search, however, soon found the numerous plant-lice, the source of this abundant honey-dew. I saw no bees at all, and wished that I might have an apiary there to glean this nectar, which was bound to shine unseen and waste its fragrance on the mountain air. If any reader of GLEANINGS ever finds undoubted honey-dew as a product of vegetation I should be very thankful to receive specimens.



OFFICE, MANAGER ORDER DEPT.

THE LATE CAPTAIN HETHERINGTON.

I was very much pained to read in the *American Bee Journal* and GLEANINGS of the death of this prince of bee keepers. I think we may well say that he stood at the head. He was, indeed, a great man, and I feel richer for having known him. I met him several times, and especially at his brother's, in East Saginaw. I knew his brother even better than I knew him. These men were remarkable for their ability, for their neatness and system, for their inventive genius, and, best of all, for their clean character. They were also very modest men. One had to know them long and well to appreciate their beautiful manly characters. I have rarely known men whom I loved and respected more. Surely American apiculture has met a great loss.

Claremont, Cal.

PRESIDENT'S ROOM.

INDOOR WINTER VENTILATION.

A Few Broad Principles that will Assist One to Solve some of the Conflicting Opinions.

BY DR. C. C. MILLER.

A correspondent who has kept bees most of the time for 65 years, is familiar with the bee-books and bee-journals of the day, and, being a careful observer, has learned many things about bees, confesses himself all at sea with regard to the subject of "winter ventilation." I don't wonder. One says upward ventilation, another says covers hermetically sealed; one says this, another says that.

Let us begin at the beginning and see if we can reconcile some of the apparently conflicting views. Bees consume food to produce heat or motion. The food is fuel, and there must be air to burn the fuel. Somewhere in the neighborhood of 50 degrees there is a theoretical point of temperature at which, if the cluster could be kept, the bees would be dormant, requiring neither food nor air. In actual practice that point of temperature may never be maintained, but it can be approximated. One trouble is that the center of the cluster will differ from the outer part.

If the surrounding atmosphere be kept at 50, any slight motion of the bees will run the *center* of the cluster above 50, inciting to more motion; hence more food, more air. Experience seems to show that, if the surrounding atmosphere be held at a point somewhere about 45 degrees, very little food and air will be needed to bring the cluster up to 50, and only enough will be consumed to hold it at that point (Please understand that I don't say that 50 is the exact point of greatest quietude; I don't know what it is; but let us call it 50 for short.) That is, less will be required to bring up the necessary heat if the temperature be a little too low than to support the motion if the temperature be a little too high.

With the foregoing as a basis, we are ready to consider some points as to the air supply. There must always be a sufficient amount of air to balance the food consumed, otherwise there will be suffocation. There may be too little air; there can not be too much *if* it be of the right temperature, for the bees will consume no more than they need.

In the cellar we can, to a certain extent, control the temperature surrounding the hives; and if the air in the cellar be pure, and approximately of the right temperature, our chief care will be to see that *enough* air is introduced into each hive. There is no fear of too much; neither does it matter *how* it be introduced, if only there be enough. If the bottom be sufficiently open, the top may be hermetically sealed; if the top be sufficiently open, the bottom may be hermetically sealed. My first cellar wintering was with box hives; and, following the lead of Quinby, I turned them upside down, making them hermetically sealed at bottom and entirely open at top. To-day my hives in the cellar are sealed at top, and pretty wide open at bottom—a two-inch space under bottom-bars with entrance two by twelve inches. A much smaller opening will answer if there be an opening above and below, as in the case of a comparatively small entrance below with a crack above, the cover being held up by a nail laid flat under it.

Outdoors we can not control the temperature of the surrounding air, and must meet conditions as well as we can. In a severe climate measures must be taken to make the hive warm, so as to lessen the demand on the bees for keeping up the heat. The change of air in the hive is, in general, caused by the fact that the warmer air in the hive is lighter than the outer air. In a mild climate with no strong winds, a large entrance at bottom, with every thing else closed, may do almost as well as in the cellar. In a cold climate, such free entrance would allow more air than needed, the extra amount only causing more consumption with its attendant ills. In a perfectly still atmosphere this would not be so bad; but let a strong wind prevail and the rapid cooling would make too great a demand on the bees. A hedge or fence may protect against these winds, and the matter may be helped in another way—contract the entrance below and leave a small crack above. With a crack above, an entrance of two square inches would allow as much change of air under most circumstances, during a perfect calm, as an entrance of twenty inches without the crack above; while a strong wind would have comparatively little effect upon the two-inch entrance as compared with its effect on the twenty-inch entrance. The point is, that the small entrance below with the crack above produces a constant passage of air that can never be great at any one time, and reduces the ill effects of a strong wind to a minimum.

A cushion of chaff or other absorbent materials, as they are called, over the brood-nest, is supposed to allow the air to pass through all its parts slowly, although experiments across the water seem to show that the benefit comes from the non conducting cushion retaining the heat, the air not passing through the cushion but through the cracks at the edges of the cushion.

One advantage of the cushion overhead is that it keeps relatively warm, and so the moisture from the bees does not congeal upon it and fall in chilling drops upon the cluster.

I resist the temptation to enter at length upon giving the *why* of the conflicting opinions of those who are equally successful with apparently opposite plans, or unequally successful with precisely the same plans. A careful application of the principles here given will probably help to solve most of such problems.

For example, my correspondent says that, for many years, he wintered without the loss of a colony that had enough honey with every thing sealed above, and an entrance of one and a half square inches, adding: "And I was in a zero country, too, where the mercury occasionally went down to 20 degrees below zero, and was frequently below zero for several days in succession. Now I am told by bee-men, bee-books, and bee-papers, that there must be 'upward ventilation.' Can you tell me how this is? what upward ventilation is? and how it can be had without an 'upward draft of air,' which is forbidden?" And, although he does not say so, I suspect that he finds that the plan that worked so well in a colder climate will not work so well in the warmer climate of Southern Missouri.

As already explained, the change of air in the hive is caused by the difference of temperature inside and outside the hive: the greater that difference, the more rapid the change. In his former location the cold was so great that a one-and-a-half-inch entrance changed the air as rapidly as the bees used it: where he is now, the bees will suffer without a larger entrance unless the change be aided by a crack above.

"Upward ventilation," as the term is generally used, means the passage of air through the hive by means of a small opening or openings above. It can *not* be had without an "upward draft of air." He who says an upward draft of air is forbidden, probably means that there must be no upward passage of the air more rapid than needed by the bees.

Marengo, Ill.

[I take it, doctor, that you are a firm believer in ventilation of some form in the cellar. Some of our leading successful bee-keepers, however, have argued for almost no ventilation. As Mr. A. C. Miller pointed out some little time ago, probably some of these non-ventilator winter-repositories were constructed in such a way that a large amount of air would percolate through the sides enough to maintain the necessary quiet in the hives.—Ed.]

FERTILIZATION.

A Hint to Queen-breeders; an Interesting Article.

BY E. F. PHILLIPS.

In works on apiculture and in bee-journals we continually see the word "fertilization;" and since the word is used in two entirely different meanings it may be well to define it and explain more fully what takes place during each act. We say that a queen is fertilized when she takes her marriage-flight and meets a drone, and that a worker egg is fertilized as it passes down the oviduct of the queen; and it is evident that the word is used with entirely different significance in the two cases.

Let us first define the word as used in connection with the marriage-flight. The queen flies from the hive, circles in the air, first in small and then in larger circles, then suddenly starts upward followed by the drones. This much is easily seen; but no one has, I believe, been able to describe any more of the flight. The queen returns to the hive later, carrying with her the copulatory organ of the drone, and after a little this is ejected. The essential part is, however, that her spermatheca, or seminal receptacle, is filled with spermatozoa during the marriage-flight. The number of these has been estimated at from two to twenty million, and it is at least certain that she receives enough so that she can keep on laying worker eggs for four or five years. The spermatozoa are the essential things in this fertilization, and not the fluid in which they float, and these do not divide or increase in number in any way after they enter the queen.

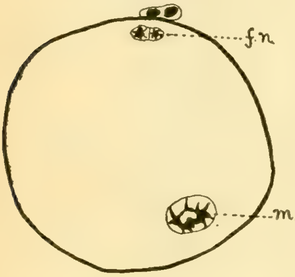


FIG. 1.—Egg of ASCARIS just after maturation; f n, female nucleus; m n, male nucleus.

A question that comes to mind in this connection is, whether the queen takes more than one marriage-flight. We do know she takes several small preparatory flights, and I have been recently informed by a man whom I consider a careful observer that he has seen the same queen enter her hive two or three times with the male organs hanging to her. This is a thing which all queen-breeders should know positively, and there is but one way to find out. The text-books say she meets but one drone, and we will presume that they are probably right; but it is not positively settled, it seems. The way to test this is to get down by the hive every afternoon during the time of flight, and stay there until the queen is seen to fly and return. If she enters one day with the organs attached, and these are removed before noon the next day, and then she flies again and returns with the organs of another drone, it is conclusive proof that she has met more than one. It will not do to guess or theorize about this, and no one has a right to express an opinion on this in a public way unless he has actually stayed by the hive all afternoon for several days, and would then be willing to swear by his observations. If any of the readers of this journal have the patience and interest to try this I should be glad to hear of it; and I will myself, during the coming summer, take up the observation, and report. It will be admitted by all, I think, that in too many things we are willing to take the word of some one else without being sure that his observations are careful; and it is very desirable to get as many *facts* as possible on this subject—*facts* concerning which there is no room for doubt.

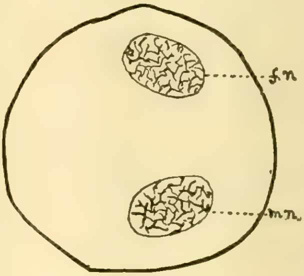


FIG. 2.—Egg of ASCARIS just later than Fig. 1.

The fertilization of an egg is an entirely different phenomenon. As the egg comes down the oviduct of the queen it passes the entrance of the spermatheca; and if it is to be a worker egg it receives from the spermatheca *one* spermatozoon through the opening in the end next to the ovary, called the micropyle. This one spermatozoon carries with it the hereditary influences from the male parent; and, although very small in comparison with the egg, yet it contains just as many of the carriers of heredity as does the egg which comes from the ovary of the queen. I myself have never seen the fertilization of a bee's egg; but the phenomenon has been most accurately observed on many eggs, and I will describe what takes place in the eggs of the parasitic round worm from the intestine of the horse, *Ascaris megalocephela*, where I have repeatedly observed it. This is preferable for two reasons: First, the mechanics of fertilization are more simple; and, second, the observation has been made on this by many zoologists, and is reliable. There is every reason to suppose that it is exactly what takes place in every animal, for so far no one has found a case which differs.

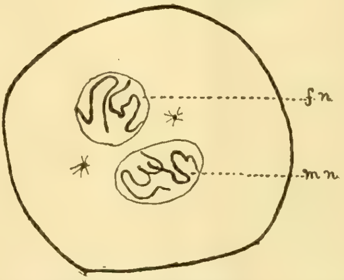


FIG. 3.—Egg of ASCARIS, later than Fig. 2; chromosomes being gathered together.

The unfertilized egg of *Ascaris* has a nucleus which contains *four* bodies called chromosomes. They are, however, broken up into finer divisions; but the egg then enters upon a series of changes called the maturation of the egg, and then these chromosomes become definite in shape, and can be easily counted. In the maturation, two of these chromosomes are thrown out of the egg, and perish, leaving *two* in the mature egg, or just half the previous number. The process of maturation is a very complicated one, but it is not necessary to give more than the final result. During the process of maturation the spermatozoon, or male cell, enters the egg, and its nucleus also contains broken-up chromosomes. As soon as the maturation is completed, the male nucleus and egg, or female nucleus, move toward each other, and the chromosomes take definite shape, and then we see that *each nucleus has two chromosomes.* These then unite, and the egg goes on developing, and from this time on *four* chromosomes are always seen.

Now, it is held by many careful observers that these chromosomes are the carriers of hereditary influences; and it is evident that there is an equal amount in the egg from each of the two parents.

The fertilization of an egg, then, consists in the uniting of two aggregations of hereditary influences, and with this union comes a stimulus to growth. When fertilization is not to take place, as in the drone eggs of the bee, the normal number of chromosomes is retained in the egg, and none are necessary from the spermatozoon; and, as a result, one parent furnishes all the hereditary influences.

Since, then, as much of the hereditary influence comes from the male as from the female, in the case of worker and queen eggs, it is just as necessary to use judgment in the choice of the males as is used for the females.

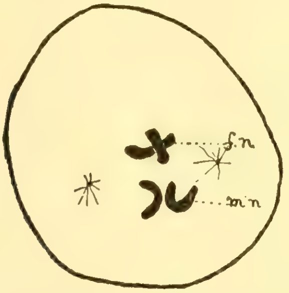


FIG. 4.—Egg of ASCARIS just before union of the two nuclei; chromosomes no longer broken up.

If I have not made the description as clear as it might be made, it may be that it will not be evident to all the readers of this just what takes place during fertilization; but one thing I want to state as strongly as possible, and that is, that the male influence is as great as the female; and to raise good bees you must have good drones. I state this emphatically, because I have within a week or so of the writing of this heard of at least one queen-breeder who is not as careful in this matter as he should be; and it is no doubt true that there are others equally negligent. I can say this and condemn the carelessness, because the man himself does not know that I know the facts, and I will see to it that no one finds out from me who he is; but if it should happen that the shoe fits any one reading this paper it is hoped that it will be worn, and, for the sake of the science of apiculture, that more care will be exercised.

Philadelphia, Pa.

To be Continued.

Heads of Grain from different fields

FEEDING UNFINISHED SECTIONS OUTDOORS; A CAUTION.

I have a lot of unfinished sections on hand, also some cases of dark unsalable honey, and have started to feed, to have young bees out early. Our bees here swarm from the end of April until June; that is, the first swarms. Do you think it a good plan to feed thus? I put a cover on top, and let the bees go in the length of one side of the super from the bottom, just a bee-space. R. WILLIAMS.

Grass Valley, Cal.

[You can feed honey this way, but you need to be very cautious or you will have an uproar among the bees on account of robbing. I would advise putting such unfinished sections in a hive and then contract the entrance down so that only about one or two bees can pass at a time. Where a large number can rush upon a large amount of sweet like this at a time it causes a stampede and general robbing throughout the yard, the trouble being very greatly aggravated after the honey is all gone. You can feed your extracted, but I would advise diluting it down with water so that it is little more than sweetened water.—ED.]

EGGS IN THE SUPERS OF SHALLOW HIVES.

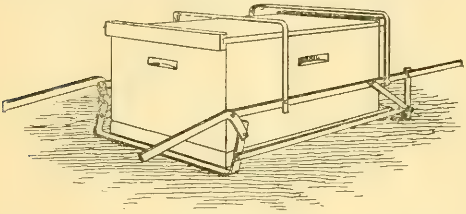
I notice that you are recommending the Danzenbaker hive, which has frames still shallower than the Dovetailed. Isn't the queen more apt to lay eggs in the sections when on shallow frames than if deeper ones were used? I use the eight-frame Dovetailed hive, and use some honey-boards, which seem to hinder the bees more or less from working in supers. Isn't there some way to keep the queen from going into the sections without the use of honey-boards? Some bee-keepers advise me to get deeper brood-frames. Would a deeper frame than the Hoffman prevent this trouble?

Mt. Carroll, Ill. H. C. DAGGERT.

[The Danzenbaker hive has practically the same cubic capacity as the regular eight-frame Langstroth. While the frames are a little shallower than the L., they are not enough shallower to force eggs or brood up into the supers. Queen-excluders are not generally used in the production of *comb* honey, as their use is not found necessary, except in some localities with some bees; but they are almost indispensable in the production of *extracted* honey. While some bee-keepers get along without them, the great majority find them a great convenience in that the honey is confined to the supers, and the brood to the lower part of the hive.—ED.]

A HANDY HIVE-CARRIER.

I am sending you a hive-carrier. I used it in putting in my own bees, and find it much easier work with the carrier, as I can carry them into the cellar and pile them up without setting them down. It does away with a lot of heavy lifting. With it I can tier up the hives in double rows with backs six to eight inches apart, and four inches apart in the rows. The carrier sent is made for ten-frame bottom-boards, 22 in. long, but will pick up boards up to 23½ in. just as well. It is the only one I have made, and can be improved; but you will be able to tell whether or not any thing as good or better has been gotten up before now. The material cost about 50 cts.



Oshkosh, Wis. H. E. GREENWOOD.

[We have tried this carrier, and find that it bites on to the bottom-board very nicely. The mere act of lifting up on the handles or levers produces a powerful pressure through the toggle joint and second lever on the front of the board. As soon as the handles are let go of, the lifting-device instantly releases itself. This tool would be handy in piling hives up in tiers.—ED.]

CUTTING BEE-TREES—A CAUTION.

A subscriber sends us the following clipping from the Tioga, N. Y., *Herald:*

> When this country was new, a man who found a bee-tree in the woods was allowed to claim it, cut the tree, and take the honey, and bee-trees are generally regarded in that light as free plunder. However, recently in a neighboring county two men who cut a bee-tree and secured 125 lbs. of honey were arrested by the owner of the property. The case was tried in court. The men were compelled to pay $1.0 each for trespass, $5 for cutting the tree, and $20 for the honey.

No one should think of cutting a bee-tree, nor any other kind of tree, without first getting the full consent of the owner. Timber and timber land are of far greater value at the present time than when the country was new.—ED.

THE FEASIBILITY OF PUTTING A COMB-HONEY SUPER BETWEEN THE BROOD-SECTIONS OF A SECTIONAL BEE-HIVE.

If I hive a swarm in a brood-chamber composed of two shallow extracting-supers filled with shallow extracting-frames (and starters) and, in three to five days, when some comb is built for the queen to lay in, I lift up the upper one and place a super of sections on, and put the lifted-up part back on this super of sections, thus putting sections in between the two divisions, what will be the result as to obtaining comb honey?

I do not remember reading of any such experiment. R. A. WHITFIELD.

Weathersby, Miss.

[We have tried the plan described, but have not found it to be very satisfactory. One objection is that pollen and brood are liable to be crowded into the sections; and another one seems to be that the bees do not like to have the brood-apartment separated by a mass of honey. We tried it on a number of colonies some years ago, but the results were very disappointing in more ways than one.—ED.]

WINTERING A LA BARBER WITHOUT VENTILATION IN A CELLAR.

I notice an article by Mr. Ira Barber, on cellar wintering without ventilation. I have wintered my bees in the same way Mr. Barber speaks of, for ten years, and have had very good luck. I partitioned off a space with paper sheeting to keep out the light. The spring of 1903 I had 27 colonies in the cellar, and lost two; one was queenless, and one died by starvation last spring. I put into the cellar 52, and lost one that was queenless. Now, if you make Mr. Barber a visit I should like to have you look into my cellar, as I live about four miles from his old yard. J. S. DEAN.

Rensselaer Falls, N. Y.

[I shall be glad to call upon you if I can get away.—ED.]

BLEACHING HONEY, ETC.

I should like to inquire if there is any known method of bleaching highly colored honey so that it can be made to look white or nearly so. I should also like to know if one-gallon friction-top tin cans are not just as good for extracted honey in the market as 60 lb. cans providing the cost is no more.

Dexter, Me. A. R. BODGE.

[Comb honey can be bleached to a considerable extent by exposure to sunlight, subdued by some white screen in hot weather. If you refer to extracted, I know of no method by which it can be bleached except to mix it with some white honey, and, as a rule, this would be poor business policy. The two honeys sold separately for what they would bring will net the seller more money than the mixed product. Some unscrupulous buyers and sometimes bee-keepers have resorted to putting the glucose into dark honey to improve its appearance and flavor. But the skilled chemist is able to detect unerringly such bogus mixtures.

Certainly a one-gallon square can is as good as a five-gallon if it can be bought at the same price. As yet, that condition is very unusual.—Ed.]

CONTROLLING SWARMING DURING THE ABSENCE OF THE APIARIST.

Will you please tell me how to manage my bees during swarming? I have about ten stands, and have other employment that compels me to be absent from 7 A. M. to 6 P. M. each day.

Some say, clip your queens; then when they swarm have some one of the family remove the old hive, and place a new one in its place. This does not answer my case, as no one in my family will go about the bees. Others say, shake them. This will not do for me, as I have tried it on three colonies this year, and every one was a failure, the bees leaving their hive a day or two afterward G. J. Sturm.

Flora, Ill., Dec. 26.

[I scarcely know what plan to recommend to you if you are not so situated as to use the shake-out or clipped-wing plan; but you can hardly condemn the former method until you have tried it on a little more extended scale. If you will be content to produce some extracted and some comb honey, make the colonies very strong, in large hives. Such will not be apt to swarm. As a further precaution I would advise having the queen's wings clipped. While, perhaps, there will be no one at home to take care of the bees in case they come out, some member of your family could report that such and such a hive had cast a swarm. This would make it necessary for you either to shake the bees into the new hive on the old stand or divide them up; for a colony that attempts once to swarm is pretty sure to carry out its intent if thwarted.—Ed.]

IS IT ADVISABLE TO STORE HONEY IN OIL-BARRELS?

Would it be safe to store extracted honey in Wesson oil barrels? If so, how should they be treated to prevent them from imparting any flavor to the honey? Would ko nut barrels be preferable to Wesson oil-barrels?
W. H. Littlejohn.

Battle Creek, Mich.

[I would not advise you to store honey in oil-tanks or oil-barrels of any kind. You will be sure to ruin the honey. The other barrels I do not know much about, but I do not think it would be wise to try them. Honey is very susceptible, and readily takes on flavors already in wooden packages. Your better way is to use new barrels or square tin cans. You can use second-hand alcohol or whisky barrels, but they should be thoroughly washed out, then coated on the inside with wax or paraffine. Melt 2 lbs. of paraffine; pour it into the bunghole; drive in the bung; roll the barrel around, and end it up; then pour out the remainder, but be careful or the bung will fly as soon as you begin to loosen it.—Ed.]

ELECTRIC OR PHOSPHORESCENT SPARKS FROM BEES.

I wish to call attention to a phenomenon I observed one evening last fall in connection with my bees — one that I have never seen mentioned concerning them. One dark evening I had occasion to disturb a colony. The night being warm, quite a number poured out on the board, and ran about excitedly in great rage, and I distinctly noticed several sparks of some form of electricity or phosphorescence. Whether this was due to heat, friction, or excitement, or some spontaneous action, I can not say; but I am satisfied I observed the flashes or glow of light. You may smile at this; but if any one has ever noticed this phenomenon before I should like to hear of it.

Kan., Feb. 15. W. S. H.

[The light that you saw *may* have been something of the nature of phosphorescence; but if there has been any thing of this kind that has ever before been observed in a hive I have seen no reports of it. I shall be glad to get reports from others.

You will remember there was an old joke that went the rounds of the press, and every now and then bobs up as something new under the sun, to the effect that a certain scientist had made the wonderful discovery that bees and lightning-bugs could be crossed so that the bees could work by night as well as by day. I do not suppose your bees were this kind of hybrids. If your letter did not bear the marks of evident sincerity, I should think you were trying to get off another lightning-bug joke.—Ed.]

HOW TO MAKE ZINC NUMBERING-TAGS.

Referring to tags (see Straws, Dec. 1), I use zinc tags prepared as follows: Dip the zinc in melted beeswax so as to secure a thin covering of wax. After it has cooled, with a metal stylus write your figures in the wax, then fill the etching with muriatic acid. Allow it to eat into the zinc for two minutes, then plunge in water; afterward scrape off the wax, and you have a durable inexpensive tag. H. I. Larcombe.

Bettsville, Md.

CAPTAIN HETHERINGTON'S DEATH MOURNED IN EUROPE.

The death of Capt. Hetherington, that prince of American bee-keepers, as you call him, very much affected us. We always have much esteem for all Americans, and veterans more especially, and we feel as if a friend in the great family of bee-keepers were wanting. Now another one is gone home. P. J. Baldensperger.

Nice, France.

OUR HOMES,

BY A. I. ROOT.

Is any sick among you? let him call for the elders of the church; and let them pray over him, anointing him with oil in the name of the Lord.—James 5:14.

Ever since I began reading the Bible carefully and prayerfully I have wondered that there is so little said in it regarding caring for the sick, curing disease, etc. Of course, there were prophets in the olden time who healed by word or touch; but even when God dealt directly with his children, there seems to be an absence of any specific directions for the care of these bodies of ours. Among the ten commandments given to Moses there is one that says, "Honor thy father and thy mother, that thy days may be long upon the land," etc. This is a remote reference to the matter of health and length of life; but, if I am correct, it is the only one of the commandments that really has much to say about the matter. The Bible seems to be especially devoted to the *moral* and *spiritual* health of humanity. But for all this it has seemed strange to me that the all-seeing Father should not have told us more about what his wishes are in the way of using remedies, and regarding the whole matter of healing the sick. Later on, when Jesus came down from his home in heaven because of his love and sympathy for poor humanity, while he gave rules and laid down directions without number for our moral and spiritual up-building, he has, I have sometimes thought, almost *avoided* either discussing or *indorsing* the common methods of healing the sick. Of course, it is true no medicines or remedies were ever needed whenever *he* was near, for he was the *great* healer, the one physician who *never* lost a patient. But why did he not give us some specific rules that might be a help to us after he had gone back to his heavenly home? It is evident the Bible is not in any sense a "*doctor* book." There are various places where we are told to pray when in trouble of any kind; and our text is clear and distinct in regard to this matter. But the words of the text are not the words of *Jesus*. James is supposed to be the brother of our Lord, or at least the son of Joseph the husband of the virgin Mary. Now, may be our ministerial brethren will think I am not quite orthodox when I suggest that James could *not* speak with the same authority that the Savior did. I believe James is right; but I do not believe he had divine inspiration so that he knew about these things as did God the Father, or Jesus the Son later on.

I have always curiously considered this expression about anointing with oil; and several times, if I am correct, pious people have undertaken to heal diseases by praying over and anointing the sick with oil; and sometimes I have wondered what kind of oil James had in mind, and I have wondered, too, whether it were possible, among the great mass of remedies in vogue in his time, he meant to recognize the value of only this one. Jesus tells us, in that wonderful parable, that the good Samaritan poured "oil and wine" on the wounds of the poor sufferer. Did he, by this expression, intend to authorize the use of oil and wine as remedies?

Just a few days ago that excellent periodical, the *Sunday School Times*, gave me a little light on this matter. They made a statement something like this: The inspired writers seemed to fall in line with the general belief of the time in which they wrote, and they simply meant to indorse harmless remedies; and what James intended, when he spoke about oil, was only an exhortation to the people to do the best they could or the best they knew how for a suffering brother. In his day oil was one of the remedies in use, and it is a good one still. I have seen mechanics take an oil-can and pour oil on a sore or a burn that was hot and feverish. When my corns and chilblains become dry, and the flesh hard and painful, a little nice oil, or vaseline (which is the same thing), sometimes gives wonderful relief. Sometimes the smarting of a burn may be stopped almost instantly by the use of oil. Now, James simply intended that we should make use of every thing we could lay our hands on for a suffering friend, at the same time we prayed for wisdom and understanding. When Jesus spoke of what the good Samaritan did, it seems quite probable to me it was along in the same line, and so on all through the Bible.

Do some of you ask why God the Father or Jesus the son did *not* tell us more about this vital question that so much concerns human happiness? I might say I really do not know; but on a little more reflection I really do know something about it—at least I think I do. The father who helps his child over every log he comes to, especially after that child is large enough to climb and work hard himself, is doing the child an injury. You can find rich men's children who are really "crippled for life" in this very way. For some reason which I do not exactly understand, God seems to think best to let us work out our own physical salvation through much pain and suffering. This thing we *do* know—that Christian nations are making far greater progress in the way of securing general physical health than heathen nations. We know, too, that righteousness and Christianity are highly conducive to the highest state of health to any people. I have not touched on Christian Science yet; but you may have gathered that I have but little faith in Christian Science or any thing of that sort unless it is coupled with an honest, earnest faith in the Lord Jesus Christ. I believe in the kind of religion that, *while* it prays, it also looks after the matter of pure water to drink, sends the patient out of doors to get over consumption by the use of *pure air*, and *general* cleanliness and purity, not only for all that are sick, but for everybody else.

The above is a rather long preface, it is true; but it is simply a preface to an account of some personal experiences I have had of late. In fact, the above thoughts had been considerably in my mind toward the close of the year 1903. I think I will choose for a heading to this talk,

WHEN SHALL WE SEND FOR THE DOCTOR?

On Christmas eve, when I returned from our annual gathering at our church, Mrs. Root and I retired about as usual. She did not go to the Sunday-school gathering on Christmas eve with all the rest. About ten o'clock she did not seem to be able to get any sleep, and said she believed she was going to have one of her attacks of pleurisy. She has been subject to such attacks off and on most of her life. In a short time the pain became very much more acute than usual, and she was suffering greatly. All through the long night I begged to be permitted to call a doctor, which I could easily do by the use of the telephone. She objected every time. Now, it would hardly be fair to say that Mrs. Root does not believe in doctors, for she does, and not only respects but reverences the family physician when he is a good man, as a doctor always ought to be; but she has a theory that doctors are called a good many times when there is no particular need of it. She was so vehement in declaring that she could manage the attack without the help of any doctor, as she had often done before, that no doctor was called till next day in the afternoon; and even then myself and the children were almost obliged to overrule her wishes in the matter. The doctor said it was a very severe attack of pleurisy, and was likely to result in pleuro-pneumonia. When I told him we urged her to call him at the first attack he said something like this:

"Mr. Root, if your house were on fire would you wait half a day or more to see whether the fire was going to do any harm? or would you put it out when the blaze was small?"

Very likely the doctor was right in saying that our procrastination was something like letting the fire burn until it was well under way. Mrs. Root and I have both tried since that affair to see if we could decide what brought on this sudden and severe attack. The day before Christmas, for a few hours it was warm and rainy. She ventured across the street, without any covering over her head, and with only a light shawl; but this she has been doing all her life — in fact, she has always delighted in showing the children how she could run around outdoors bareheaded, and without being bundled up (like your humble servant, for instance). Two days before the attack she went with me in the auto, and visited a sick relative, perhaps a mile from home. While going with the wind we were both quite comfortable; but the return trip was against the wind. Neither of us was very warmly clad. On this account I hurried home to get where it was warm. She rode against the stiff south breeze, and was pretty well chilled when we reached our own warm rooms.* But she and I had often had this same experience, and never before felt any bad effects of it. The doctors say that her general health must have been poor about that time; but she and I feel positive she was in excellent health and spirits until the attack. I do not know *what* brought it on.

Christmas came on Friday, and by Sunday night she was a very sick woman. Thus far in our married life we have never had any experience with a trained city nurse; but just then all the children insisted that mother should have the best help that could be obtained. The nurse and doctor did their best; but on Sunday night the pneumonia had taken such complete possession of her lungs that it was difficult for her to breathe. I heard the nurse calling through the telephone to the doctor to hurry down as soon as possible — that the patient's heart was acting very badly. While the nurse was at the telephone I slipped up to my wife's bedside and placed my finger on her pulse, as I had been in the habit of doing all along. The pulse was very weak and irregular. Finally there came a great throb; then three or four little beats almost like the tick of a watch, irregular in time and varying greatly in force. The doctor got there very quickly, and he told me there was great danger. Unless the heart could be quieted, she might not live till morning. One of the best physicians we knew of in Cleveland was summoned by telephone. An extra nurse was ordered, to be with the patient while the regular nurse slept. Soon after I had tested the pulse Mrs. Root looked up at me inquiringly.

"Amos, what is all this commotion about?"

Now, I have never withheld any secrets from Mrs. Root—at least not for years past; and *I* know, if the rest of the world does not, that she is cool and steady enough to be told the truth without being disturbed or frightened. Notwithstanding this, I did not feel that it was my duty to tell her just what the trouble was. While I debated what answer I should make, I said, by way of evasion:

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*I have been told that large numbers of people have contracted severe colds, sometimes resulting in pneumonia, from riding in an open automobile during very low temperatures. The unusual rush of air, especially when one goes against the wind, requires extra clothing and wraps; and dealers in automobile supplies are already advertising garments made specially for winter automobiling. Why, even during the month of July, on that trip through Michigan last summer, I was obliged to wear a summer overcoat a great part of the time, especially when we were running *against* the wind; and a few times I was obliged to exchange my summer cap for the fur cap I wear in winter. The rush of air is all right; but elderly people should remember to keep well clothed. When I was bundled up with a fur cap and overcoat, twenty-year-old Huber was happy in his shirtsleeves, without any collar or necktie.

"Shall I tell you, dear wife, just what the matter is?"

I suppose our friends will all excuse me when I say that I made this reply in order to gain a little time before answering further. She replied, "Yes, tell me what it is that worries you all."

She had been suffering on account of a lack of sleep, as she always does under similar circumstances, so I replied, "We are all worried because you are suffering from a loss of sleep; for if you do not get some sleep how can you resist the fever that has got such a hold on you?"

"Then if I go to sleep will you all feel relieved?"

Rejoicing that I had so successfully steered her off the track, I was going to drop the subject. She shut her eyes as if to try to sleep; and in a few moments afterward, in a feeble voice, she said, "I did not know but you were worried about my heart, for I felt it fluttering."

Just then I said I would go below to look after the temperature of the rooms; but I felt in real truth as if I must go away by myself where I could pray. In the apartment below, just under the bed where the dear patient lay suffering, I knelt and poured out my heart in silent prayer. I have many times tried to pray since her sickness; but it seemed to be a cold and mechanical prayer. I did not realize the danger. Just then, however, our two lives seemed to pass in a panorama before me; and then I looked out into the future and tried to catch a glimpse of what my life would be without her daily counsel and loving sympathy. I realized that thousands of others had met such trials, and were bearing them as best they could; and I remember feeling ashamed of the selfish cowardly spirit that prompted me to say in anguish, "O God. I can not bear it, I can not bear even the *thought* of it."

As I prayed I became more tranquil, and I tried to say, as did the dear Savior, "Nevertheless, not my will, but thine, be done."

Now, dear reader, before resorting to prayer I had done everything that poor humanity could do. I had counseled with our physician, and with his sanction I had called the best medical help our State afforded. We had availed ourselves, also, of the best nurses, two of them, so that she could not suffer one single minute from neglect. The five children were also near, with my two sons-in-law and one daughter-in-law, each vying with the other to see what else could be done for the suffering mother. After having done every thing that this present age could afford for the sick, *then* I could pray *earnestly* that the great Father would look down in pity and loving sympathy, and listen to his helpless children. Jesus says, you know, "If ye, then, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?"

As I went back to the sick-bed I felt that the Holy Spirit was with us, even though my request should not be granted. One special thing was revealed to me as I knelt there alone in the middle of the night — the fact that we are so prone to be selfish in a time like this. I was not praying for humanity—in fact, I was not even praying, at least *then and there*, for sick people generally, or that the physicians and nurses of *the world* should have more skill and knowledge. I was only beseeching the dear Father to spare to me just a few years longer the dear companion of my home and my life. Why should I or why should we in times like this expect that God was going to favor *us* particularly when thousands were suffering may be many times more than we suffer? May God help us, while we are praying for the sick, to strive more to make our prayers unselfish ones.

In my next I wish to give you some helpful suggestions in regard to the modern methods of treating the sick; and I will confess to you that one desire (of course, it was a minor one) in this whole affair was to find out what had been accomplished in modern times in the way of relieving sickness and suffering. It does not always follow that people are cured by getting the most expensive doctors and nurses; yet if the science of medicine is making *real* progress there ought to be a better chance for the patient when we hunt up the best-educated and most skillful physicians and nurses.

To be Continued.

Temperance.

LOCAL OPTION IN ARIZONA.

While visiting at friend Jefferson's in Safford, Arizona (see page 26), I was introduced to quite a lot of temperance people, and they told me of the fight they were making to banish the saloon. Just now friend Jefferson sends me a report of the contest. We quote one sentence:

> Each side did its best, and the result shows the true state of public sentiment in the place on the question, there being 109 votes in favor of local option, and 82 in favor of the saloons, the latter winning out by the narrow margin of 19.

Now, the queer thing to me in the above is that it takes *two* votes for temperance to balance one vote for whisky; and yet they call it "local option." I supposed local option meant that the *majority* should rule. But that is not all the trouble. Mr. Calvert, my son-in-law, tells me that in Canada, where he came from, they have the same beneficent(?) ruling to guard the morals of the people. May I be permitted to ask who perpetrated such an outrage on decency, both in Arizona and Canada? Surely Queen Victoria never introduced such a regulation. It *is* "local option," you see, but you must have two temperance votes to match one saloonist. I hope I am

making a mistake. Can it be that all of *Arizona* is under such a ruling? Canada is not exactly our job.

HIGH PRESSURE
GARDENING
BY
A. I. ROOT.

We clip the following from the *Country Gentleman* for Nov. 26, 1903. While there are probably some mistakes in regard to the amount of the crop, and where it is mostly raised, I think the article is, in the main, substantially correct. With the present price of buckwheat grain, it well behooves bee-keeping farmers to give more attention to this crop.

THE CULTURE AND USES OF BUCKWHEAT.

The largest buckwheat crop ever harvested is now being gathered in the two great buckwheat-raising States, New York and Pennsylvania. Just how large it will be can not yet be told, although the two States named will certainly produce more than 7,000,000 bushels, against 6,468,560 bushels last year. As the production of the entire country a year ago was but 9,566,966 bushels, valued at $5 341,413, grown on 637,930 acres of ground, it will be seen how important the crop of these two States is to all lovers of the buckwheat cake.

Buckwheat is raised in 24 States, growing as far south as Georgia and as far north as Maine. Last year New York stood at the head of the column of producing States with a crop of 3,280 158 bushels, with Pennsylvania a close second with 3,188,402 bushels. Third on the list was Maine, with only 719 760 bushels to her credit, while little Delaware came trailing in at the last with 3150 bushels The average price realized by the farmers was 56 cents per bushel, and the average yield was 15 bushels to the acre. Basing their calculations on a comparison of crop hazards, and the cost of the necessary fertilizers and labor, expert agriculturists estimate that it is more profitable to raise buckwheat at 50 cents than wheat at a dollar. It is, therefore, not surprising that the farmers of the older States are giving more and more attention to this cereal every year.

The four counties of Armstrong, Indiana, Westmoreland, and Butler, in Pennsylvania, have earned for themselves the title of the "buckwheat belt." In no other equal area in the United States is so much of this crop raised, as these four counties produce probably four-fifths of all that raised in Pennsylvania. The production of New York is greater than that of the Keystone State, but is more generally distributed, and not confined to a comparatively restricted area.

The buckwheat cake is a peculiarly American institution — as much so as the pumpkin pie, roast turkey, and other toothsome delicacies dear to the heart of the epicure. The crop is cultivated in many lands, but the housewives of no other country have learned how to prepare it in such a manner as to tickle the palate of the lover of good living. In Great Britain it is considered unfit for human consumption, and is used only as food for pheasants and poultry. It is cultivated in India, where it is used on "bart" or feast days, being one of the foods that are lawful on those occasions. It is served to the Russian soldiers as a part of their rations, but is prepared in such a manner that it is said that no one but a Cossack or a starving man can eat it. In France it is called "sarasin," and is used as food by the very poorest of the peasantry. The French name is a bit of fossilized history, being a reminder of the fact that the grain was introduced into Western Europe by the Crusaders, who obtained it from the Saracens of Asia Minor.

In Germany this grain is fed to cattle and poultry, but is not highly esteemed as food for human beings. Beer is there brewed from it, and it is sometimes used in gin-distilleries. The German name is "buchweizen," or beech wheat, so called from the resemblance of the sharp triangular grains to beechnuts. In Japan it is extensively used as an article of diet, and the Japanese variety is one of the most highly esteemed and most extensively cultivated by American farmers, the Japanese variety being considered more productive and hardy than the European or "silverhull." The grain is supposed to be a native of the basin of the Volga, the shores of the Caspian Sea, and parts of Central Asia. Probably it was introduced into China and Japan by marauding Tartars, centuries before it became known to Europeans.

Not many years ago buckwheat cakes were eaten only by the very poor of the rural districts. They ate them, not because they liked them, but as a measure of economy. There was no market for the grain or flour; and where it was grown at all it was fed to livestock, or eaten only in default of any thing better. It will grow on the poorest soil, where no other crop can be raised. It matures very quickly, and a crop failure is hardly ever known. But little fertilizer is required, and that of the cheapest grade, so that it is pre-eminently the poor man's crop.

Among the bee keepers, buckwheat is a favorite crop because the blossoms contain a greater percentage of honey than is found in the flowers of any other plant of economic use aside from its value as a honey producer. As long as buckwheat is in flower the bees of the neighborhood confine themselves entirely to it, thus producing pure buckwheat honey. The market value of this is impaired by the fact that it is of dark amber color, instead of the clear white demanded by the fastidious city trade. In making this exaction city customers show their own ignorance; and but few of them who have ever tried genuine buckwheat honey would be willing to exchange it for the finest grade of "white clover." And surely no lover of buckwheat cakes will deny that it accords with the eternal fitness of things that they be well lubricated with honey made from buckwheat blossoms before being started to their last resting-place on the inside of a capacious waistcoat.

Buckwheat makes practically all its growth in six weeks of hot weather in July and August, being the most rapid-growing of farm crops. For this reason it is supposed to be very exhausting on the soil, so that the owners of fertile farms will not raise it This is no doubt the reason why Butler, Armstrong, Westmoreland, and Indiana Counties have become pre eminently the buckwheat belt. Those counties are full of bald knobs that have been cultivated for over a century, until all the natural fertility of the soil that has not been extracted by the crops has been washed down by the rains into the valleys below. They will produce nothing but buckwheat or beans and as buckwheat brings in the greater returns with less labor, buckwheat is the crop that is preferred. Possibly the time will come when these wornout and impoverished farms will no longer produce even buckwheat; but with firm faith in a beneficent Providence, and in the efficacy of commercial fertilizers, the farmers are losing no sleep over that contingency.

Buckwheat is sown broadcast, or drilled into the ground, about the first or middle of July, and is harvested as soon as the first frosts kill the last lingering blossoms. The sheaves are allowed to stand in the field a few days, until the peripatetic steam-thrasher comes around when the crop is hauled in and thrashed. This is really the most critical season of the year for the buckwheat farmer Often a large crop is nearly ruined by a few days' wet weather after the grain has been cut, but before it has been thrashed.

It is a busy and exacting time for the owners of traction engines and thrashing-machines, to whom the whole farming community look to save their crop from possible destruction. Often they work till midnight and then travel for miles in order to be ready to begin work at the next stopping-place by sunrise. And in case heavy rains or early snows work havoc with the unthrashed grain, it is the tardy thrasher who must bear the blame.

SOME FACTS, CRITICISMS, ETC.

By way of introduction I will say that I am not much interested in bees now, but continue to take GLEANINGS, partly from habit and partly for the notes on travel and gardening.

GIANT GIBRALTAR ONIONS.

In 1902, 8 sq. rods planted to Giant Gibraltar gave me about 15 bushels of nice bulbs and a lot of trash, while White Globe, under the same conditions, yielded at the rate of more than 800 bushels to the acre. I have no further use for the former.

POTATO CULTURE AND FERTILIZERS.

Mr. Terry's "adverse experience" with fertilizers is a matter of interest, and his advice to "be perfectly sure you are right" is good. I submit, however, that his quotation from Director Thorne (sup. 29) is misleading—likely to leave a wrong impression concerning the teachings of the Station. In Bul 94, June, 1898, page 325, the Director said this: The point insisted upon was that the price of fertilizers was too high in proportion to the value of the crops produced—not that the fertilizers did not produce increase of crop. On the contrary, this station's experience constantly showed a larger increase of crop from certain artificial fertilizers than from barnyard manure." Again, in Bul. 71, April, 1896, page 185, "When fertilizers have been used on potatoes there has been a good profit, with ordinary yields and average prices of potatoes."

FARMERS' WIVES.

The reason which you give for so many farmers' wives going insane is amusing, and reminds me of the story of the wise men who gave long scientific reasons for a fact—a fact that wasn't so. The report of the State Board of Charities of Pennsylvania, as quoted in the *Stockman and Farmer*, Jan. 6, 1898, shows this concerning the patients admitted the previous year: Of 1060 male patients, 139 had been farmers; and of 806 female patients, 32 were farmers' wives; 28 were farmers' daughters, and 6 were farmers' widows—66 in all

Ohio statistics for 1885 and 1894, the only copies which I have at hand, show that men constitute a majority of the patients in Ohio, as in Pennsylvania, but do not tell what their avocation had been. Better make sure that it is so before you worry any more about farmers' wives being neglected.

East Springfield, O. R. M. Reynolds.

Friend R., I am exceedingly obliged to you for your facts, especially for the criticisms. I think you must have had poor seed of the Giant Gibraltar onion. The crop of seed has been short for several years, and on this account almost every thing has been saved. The first small lots of seed I had for tests gave very much better results than that for two years back. As they are very much larger than the White Globe, I hope we may be able to get a strain of seed that will give a good big onion from every plant. During my visits to the Ohio Experiment Station I had reports like what you have mentioned, in regard to fertilizers for potatoes; and at the price potatoes are worth now—almost a dollar a bushel—it will probably pay many farmers to use the right kind of chemical fertilizers. Last, but not least, I rejoice to know that farmers' wives are *not* all "going crazy." The statement I saw was given in a daily paper, and I did not look for any statistics to corroborate it. We can well rejoice that it is not true.

WINTER VETCH.

The report below, clipped from the *Country Gentleman*, comes from our old friend M. M. Baldridge; and his concluding sentence would indicate that, in many places, it might be a wonderful help—that is, if one seeding can be made to give a crop for *fifteen years*.

I am greatly interested in the winter vetch, having grown the same in an experimental way for several years past. It is a wonderful plant to stool when given a proper chance. One peck (15 lbs) of seed is plenty to sow to the acre. This vetch should be grown with wheat or rye in the North as a support to hold the plants up and off the ground. One-half bushel of either grain is ample to the acre. This variety of vetch may be sown either in the spring or fall; but when wanted to produce seed, it must be sown in the fall

My experience says that the plant must be grown so late in the year that it will not bloom until it has passed through the winter. It will then produce seed freely in the following June or July.

In Mississippi the vetch is grown with winter oats, both being sown in the fall. The crop there is pastured from December to March. The live stock is then taken off and the double crop is permitted to grow for hay or seed, after which the land is flatbroken and planted immediately with cow peas. When the vetch is grown for grain or seed, the land is found to be nicely reseeded with oats and vetch when the cow peas are ready to be cut for hay or harvested for peas.

One of my correspondents in Mississippi has grown this double crop for about fifteen years, and from only a single seeding, and each year has secured a good crop of cow peas besides. He grows this double crop on a large scale—100 acres and upward per year. His average crop of oats and vetch is about forty bushels per acre, and this is sold, without separating, and for seeding purposes, at $1.00 per bushel.

THE NEW DISEASE OF THE POTATO—THE ROSETTE.

For several years past I have noticed on our Medina soils here and there a hill of potatoes with the foliage curled and twisted up, something like the curl-leaf of the peach-tree, but with the potato the whole hill was dwarfed. One of my reasons for changing my potato-growing to Northern Michigan was that I might escape this trouble (and scab) by starting on new ground that had never grown a crop. But I was a good deal discouraged to find more or less of this trouble with the potatoes in Michigan. It was probably carried in the seed. Some years ago I called the attention of our Ohio Experiment Station to the matter. Below is the result of their experiments:

TREAT SEED POTATOES FOR DISEASE.

Recent investigations made at the Ohio Experiment Station show that a disease, heretofore but partially recognized, injures potato-tops severely at times. This is the potato rosette, and this disease appears to be general Seed treatment in 1903 has increased the yield, where the disease prevailed, from 25 to 125 per cent on a light crop. Bulletin 145, just published, gives the second series of results in treating for this trouble. Formalin at the rate of 1 pint in 30 gallons of water is the solution used. Immerse the seed potatoes in this for 2 hours, after which the tubers may be dried and cut for planting. This bulletin will be sent to all citizens of the State who may apply for it. Address The Ohio Experiment Station, Wooster, O.

This treatment is also a remedy for scab. An increase of from 25 to 125 per cent makes it well worth while to treat the seed with formalin as above. Tomatoes are also sometimes affected with the same disease, and a similar one is found at times on Grand Rapids lettuce.

THE ROASTED-CHESTNUT POTATO.

We are exceedingly glad to get something from one of the old veterans in growing nice potatoes, and I can heartily indorse every point friend Manum makes. I think I shall have to send him a potato or two so that he can see what he can do.

Friend A. I. Root:—In Gleanings for Feb. 15 you ask if some one can advise you how to grow your "roasted-chestnut potato so they won't be hollow." Now, were I to try to breed *out* the hollowness in a potato I would try late planting, say from June 25 to July 12. I have succeeded in growing fine potatoes from hollow seed by planting July 12 on an old strawberry-bed just turned over. My nicest potatoes the past year were grown by planting July 7. These were set aside for family use. Then if the season proves favorable for potato-growing when planting thus late we may expect a fair yield of fine table potatoes. What I call a favorable season is one with a moderate rainfall. Too much washing of the soil by frequent heavy rains is not what the potato requires, but, rather, the moisture that may be brought within reach of the roots by capillary attraction. It is well known that plants take up their food only when it is provided in solution, taking it by absorption. The food may be dissolved, however, by water or by the direct action of the roots or by the process of fermentation, which is almost constant in all soils. In either case, soil moisture is essential. Now if our soil is of such a nature that we can obtain sufficient moisture by capillary attraction, it being that upon which plants mostly feed, as it travels upward, downward, and sidewise, we have the most natural conditions for plants to obtain food. Of course, free water (rain) is essential in moderate quantities to replenish the bottom strata, so that nature's "pumps" may have a supply from which to draw. Furthermore, I have observed that cool nights are beneficial to the development of the tubers; hence the desirability of late planting for quality.

I have barely touched on the subject of plant-growth, and doubtless unnecessarily, as I am sure you are better posted on this subject than I am; but when I get to writing or talking on this subject I am much in the same predicament that I am when in an orange grove sampling the golden fruit. *I don't know when to stop.* And, by the way, friend Root, I have been much interested in your writings of Southern California, as my wife and I spent the winter in Los Angeles and vicinity last year. A. E. MANUM.

Bristol, Vt., Feb. 22, 1904.

THAT HIGH-PRICED POTATO.

Below is the clipping from the *Scotsman*, referred to on page 243:

> The new potato, El Dorado, was sold at the London Christmas Show at £150 for one pound weight, and the buyer was offered £160 for it later.

RAISING THE HARDY CATALPA FOR LUMBER, POSTS, HONEY, ETC.

We were recently shown by an agent some beautiful specimens of very light tough lumber from the hardy catalpa that grows native in some parts of the West. This catalpa is also said to be worth as much for posts, railroad-ties, and timber to be put in the ground, as any thing else known; and several railroad companies are planting the trees to grow ties. As I knew they had been considering the matter at our Ohio Experiment Station I asked Prof. W. J. Green to tell us something about the tree. Here is his reply:

Most seedsmen have been careless regarding the kind of seed which they sold, hence the majority of the trees which have been grown from these seeds are of the wrong kind, because the hardy catalpa does not produce as much seed, and is more difficult to procure. It is impossible, when the trees are small, to tell what they are. After they have attained some age it is possible then to distinguish the different kinds. They are easily distinguished by the blossoms and seed. The station is now making considerable effort to introduce the true hardy catalpa, and we have quite a number of trees which we expect to send out to different parts of the State for the sake of an experiment. We do not expect to sell the trees nor give them away, but we shall require the party to conduct an experiment to pay for the trees.

The catalpa frequently, on good soil, makes an increase in diameter of an inch a year. I saw trees in Creston a few days ago that were planted only ten years ago and one of them was more than a foot in diameter. On ordinary soil they would not grow as fast. There are some near Wooster that are about twenty years old, not very much larger than the one mentioned at Creston. We have some on the station ground that are ten to twelve feet high, three years from planting. I know of a grove where the trees are planted eight feet apart each way, and at twenty years of age are worth on an average $1.00 per tree for posts and poles. I hope that you will plant a grove of this tree, for it is surely very valuable, and I do not know of any species of tree that will be likely to yield greater profit. W. J. GREEN.

Wooster, O., Feb. 15.

THE SLOE PLUM IN EUROPE.

Mr. Green's letter on the sloe plum reminds me (as an Englishman) of the wild sloe of Great Britain, which is identical with the Irishmans's black-thorn or shillala.

From the white-blossomed sloe
My dear Chloe requested
A sprig her fair breast to adorn;
Oh! no, no! I replied;
May I perish if ever
I plant in that bosom a thorn.—*Irish Ballad.*

The wild British sloe is of the nature of a very small plum—purplish in color, with the bloom of the Damson, and choky when eaten; grows freely and persistently in the stiff clay lands; the shoots emanating from the main stem are protected by the thorns, one on each side, which die when about a year old. The thorn forms a better fence than the hawthorn so extensively used while a patch of blackthorn brush is a pretty tough proposition to tackle. It is cut occasionally—that is, every fourth or fifth year, and furnishes "thorns" for mending the gaps in the hawthorn hedge-rows; and at such times those who wish can choose a very fine walking-stick by taking out part of the root for a handle.

The thorns spring up again from the old roots, and only occasionally from seed.

I should consider it a "plum," but of a low order; very hardy and parasite-resisting, ranking high in these respects, and I do not see why it would not be extremely useful for hybridizing work.

Melrose, Mass. JAMES M. PULLEY.

From your description, friend P., I think the tree you refer to is very much like our sloe plum here, only I could hardly agree with you in regard to the quality; and with cultivation they get to be of pretty good size here. Not only should it prove useful for hybridizing, as you suggest, but why can it not be used for an extremely hardy root for grafting other more valuable plums? Can some of our nurserymen tell us about the latter?

HEALTH NOTES
BY
A. I. ROOT

MORE FROM HARRY LATHROP.

I have just read your comments on my letter, page 1019. I am glad of an opportunity to say a few words more.

I have not adhered to the natural-food plan for certain reasons. The principal is that, at the present time, one must isolate himself and provide his own food if he is away from home. We need association and good fellowship at our meals. This is very important. When I am at home I use a modified natural-food diet, and eat with the folks.

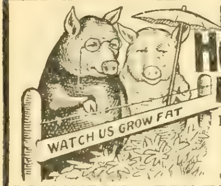
I believe the time will soon come when a great many people will adopt the plan of living on simple and natural foods. There must be a halt made soon. All over this country business men and clerks are overworking, and rushing themselves to the extent that they become so nervous that they can't take time for their meals or really to live. I am against our modern habits; but being right in the current it is difficult to change.

The fruit breakfast you speak of is all right. For an ordinary meal a slice of good graham bread and butter, a few English walnuts, and three or four best imported dried figs will give health and satisfaction. The expense of such living is very little, which is a consideration with many poor fellows. We have a great variety of good things to select from. All we require is to use only a limited number at a time, changing as our taste indicates our needs.

I shall stick to the natural foods as long as I can, other requirements considered.

I thank you for your kind words to me, Mr. Root, and pray that you may be spared in health and vigor for many years of useful work. HARRY LATHROP.

Monroe, Wis., Dec. 12.



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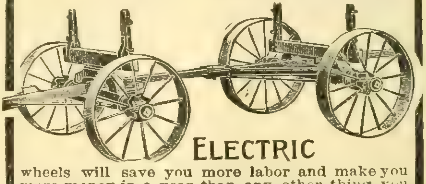

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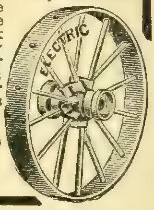

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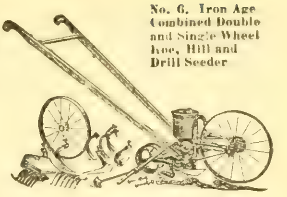

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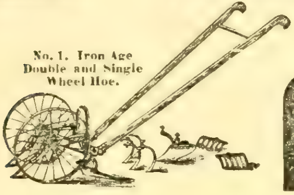

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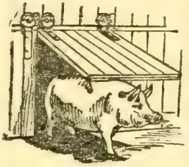

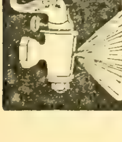

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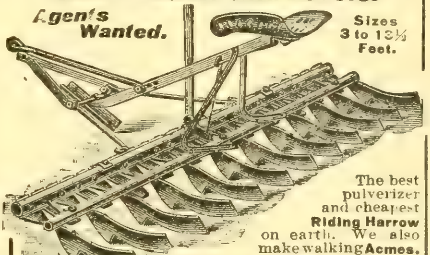

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A Hot Water, Self-Regulating, 50 egg Incubator $4.50. $3.00 and up for Brooders. All on **30 DAYS' TRIAL.** No agents. You pay no middlemen's profits. See catalogue for "100% Hatches." Write

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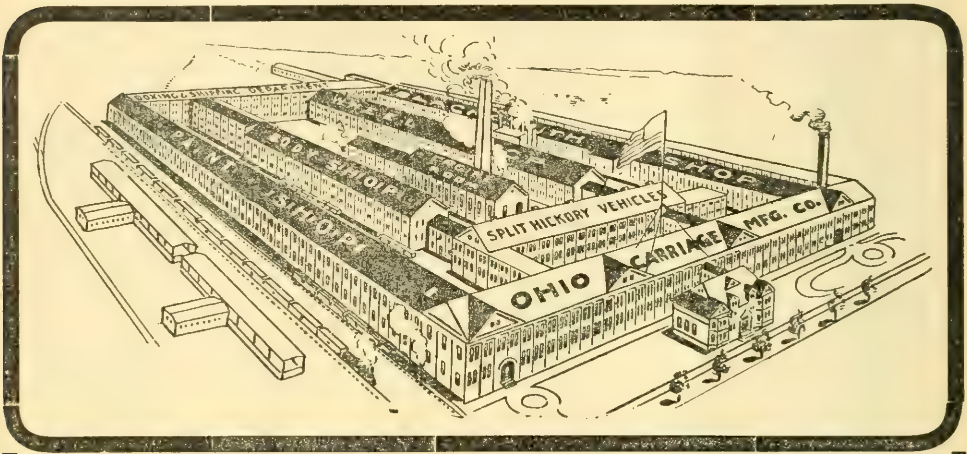
This Factory is Good for $50.



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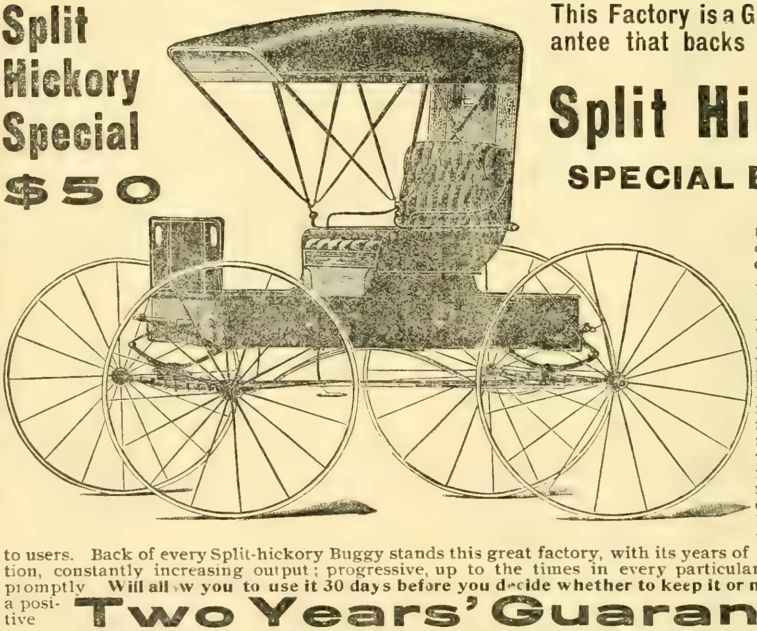

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Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee Smokers, Bee-veils, Pouder Honey-jars,

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No order too small, and none too large. "Satisfaction guaranteed" goes with every shipment. A pleased customer is the best advertisement that my business has ever had. Remember that it is always a pleasure to respond promptly to any communication pertaining to the bee or honey industry.

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During 1904 we will raise and offer you our best queens. Untested, $1.00 each, $5.00 for 6; $9.00 for 12. Tested queens, $1.50 each; best breeders, $5.00 each. One, two, and three frame nuclei a specialty. Full colonies, and bees by the car-load. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy-Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18, Beeville, Tex.**

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Daughters of select imported Italians, select long-tongue (Moore's), and select golden, bred 3¼ miles apart, and mated to select drones. No impure bees within three and but few within five miles. No disease; 31 years' experience. All mismated queens replaced free. Circular free. Safe arrival guaranteed.

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	Price before July 1st.			After July 1st.		
	1	6	12	1	6	12
Untested	$ 75	4 00	7 50	$ 60	3 25	6 00
Select	1 00	5 00	9 00	75	4 25	8 00
Tested	1 50	8 00	15 00	1 25	6 50	12 00
Select tested	2 00	10 00	18 00	1 50	8 00	15 00

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

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Cary Simplicity Hives and Supers, Root and Danz. Hive and Supers, Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season. 32-page Catalog Free

W. W. CARY & SON, Lyonsville, Mass.

Doolittle Says:

"Be very choice of this Breeder; if ever a Queen was worth $100, she is." Then we have Breeders from our strain that gave the big yields in '94, and which some of the largest bee-keepers in Cuba say can't be beat. They swarm but little and are **honey-getters.** We are breeding for **honey-gatherers** more than color. We cull our cells and queens, and **warrant** queens purely mated. Prices: Select untested, $1.00; select, $1.25 tested, $1.50; select, $2 00, breeders, $3.00, $4 00, and $5 00. Circulars free.

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Try my strain of three and five banded queens; untested, in April and May, $1.00 each; six for $5.00. Tested, in March and April, $1.25 each; six for $7.00. Orders by return mail. Am booking orders for early delivery. Sold 1800 last year. Can fill all orders, no matter how large.

DANIEL WURTH, Karnes City, Karnes Co., Texas.

Mention GLEANINGS in your order.

ARE YOU IN NEED OF EARLY QUEENS?

If so, we can supply you by return mail with the CHOICEST of TESTED QUEENS for $1 each. These queens are healthy, vigorous, and prolific, and from our reliable strain of three-band Italians, which are unsurpassed as honey-gatherers. Safe arrival, and satisfaction guaranteed. Send for price list and see what others say about our queens.

J. W. K. SHAW & CO., Loreauville, La.

Leather Colored Italians For Sale!

Strain took first premium Minnesota State Fair, 1901 and 1902. Ready May 1st. Eight or nine frame Langstroth hives, $5.00; ten frame, $6.00 each, f. o. b. Milaca.

W. R. ANSELL, Mille Lacs Apiaries,
MILACA, MINN.

Queens for Sale

BEST Golden and Leather Colored Italian Queens. Untested, 75c each; tested, $1 50. Holyland Queens, best for Southwest, $1.00 for warranted; $1 50 tested. Breeders, $3.00 to $5 00 each.

-Slone Bee Company,-
Slone, La.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

We have files of unsolicited testimonials, but space forbids giving any here.

We employ 400 swarms in queen-rearing, the business is a specialty with us. We expect to keep 600 to 1200 queens on hand. Early in the spring, when the weather is cool queens will be shipped form the South. Parkertown, O., was our postoffice, but we have changed to Bellevue which has 13 mails each way daily. (No more of our queens will be jerked from a crane.) Our new circular now ready to mail.

ADDRESS ALL ORDERS TO

Price of Queens Before July First.

	1	6	12
Select	$1 00	$5 00	$9 00
Tested	1 50	8 00	15 00
Select Tested	2 00	10 00	18 00
Breeders	4 00		
Straight Five-band Breeders	6 00		
Palestine Queens	2 00	10 00	18 00
Two-comb Nuclei, no queen..	2 50	14 00	25 10
Full Colony on eight frames..	6 00	30 00	
Four fr's brood, 4 fr's fdn....	5 00	25 00	

Special low price on Queens and Nuclei in 50 and 100 Lots.

Quirin=the=Queen=Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200

Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1 50; select tested $2.50; breeders $4 00 to $7.00.
Illustrated price list free for the asking.

W. O. VICTOR,

Queen Specialist. **Wharton, Tex.**

Choice Queens for 1904.

We are again offering queens of the best stock obtainable. All breeding-queens are selected, first, for superior honey production, and pleased customers are constantly sending in reports like the following:

Georgiana, Fla., Jan. 29, 1904.
The untested queen I got of you last March was a dandy. I raised about all my queens from her, and they are all far ahead of the common run.
LELAND BALDWIN.

Toronto Can., April 8, 1903.
I am well pleased with your stock, my ordering again is proof of their qualities. They proved gentle and were good workers. Hoping that you can fill my order, I am yours truly, THOS. AIKINS.

Untested queens of Golden or Leather Italians, or Carniolans, warranted pure, $1.00 each, $9.00 per dozen. Tested, $1.25 each, $12.00 per dozen.

GEORGE J. VANDE VORD, Daytona, Fla.

HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1904. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, $1.25; five for $5 00. Breeders of either race, $3.00 each.

W. H. Laws, Beeville, Texas.

I will sell in May, 100 or 200 nuclei, three or four frame, with tested, or untested queens, or without queens, at prices purchaser can afford to pay.
B. F. AVERILL, Howardsville, Va.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Full colonies of bees for spring delivery.
Wm. A. Selser, 10 Vine St., Philadelphia, Pa.

WANTED.—Full colonies of bees for spring delivery.
J. B. Mason, Mechanic Falls, Me.

WANTED—To exchange modern firearms for incubators. Address
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WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey.
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WANTED.—Grade. horned. Dorset ewes (½ or ¾ blood). Give price, age, etc.
H. J. Butler, Jr., Route 17, Nashport, O.

WANTED.—Wax for White Wyandottes and Leghorns eggs, and 6-inch foundation mill.
Box 37, Altamont, N. Y.

WANTED.—To exchange for offers 6-horse engine, 10-horse boiler, 100-gal. copper. all good as new.
Chas H. Thies, Chester, Ill.

WANTED.—Bees. in April, near coast so they can be shipped to New York city by water.
I. J. Stringham, 105 Park Place, New York.

WANTED—Second hand Barnes foot-power saw. State how long used condition, and price; also whether the new or old style.
The A I. Root Co., 10 Vine St., Philadelphia, Pa.

WANTED.—A partner with $5000 in bees and cash. Unlimited range in best country on earth. Interesting proposition to right party. Address
Floresville, Tex., Call Box 82.

WANTED.—Bee-keepers who have lost bees the past winter to adopt my double-walled chaff hive this season. Write for full description and prices.
Geo. E. Hilton, Fremont, Mich.

WANTED.—To exchange for bees, poultry, eggs, or apiarian supplies, one Monarch Incubator, 600-egg size; one 100 egg Incubator; both are hot-water machines and in good condition; and two English Pointer dogs.
S. Whann, Raymilton, Pa.

WANTED—Bees in Dovetailed or Langstroth hives, full colonies in the immediate vicinity of Chicago. Write promptly, stating number of colonies offered, condition, price at which they will be delivered in Chicago, etc.
The A. I. Root Co., Medina, Ohio.

Help Wanted.

WANTED.—Industrious young man to do work on farm and bee work.
Address O. H. Townsend, Otsego, Mich.

WANTED—A man to work in apiary; state age, experience, and wages expected.
Chas. Adams Greely, Colo.

WANTED—Bee-man to run 200 colonies on shares or for wages. Would be in sole charge.
W R. Ansell, Mille Lacs Apiaries, Milaca, Minn.

WANTED.—Young man with some experience as assistant apiarist, for four or five months. 500 colonies, latest methods, fine climate State age, experience, and wages desired. Give reference.
E. F. Atwater, Box 915, Boise, Idaho.

Situations Wanted.

WANTED.—Situation with an up-to-date queen-breeder, east of the Miss. River, to learn the business. I have experience with bees (queen-rearing excepted) in both the East and West. Correspondence solicited. Address
Queen Breeder,
Care The A. I. Root Co., Medina, Ohio.

Addresses Wanted.

WANTED.—Addresses of bee-keepers who use chaff hives.
Geo E. Hilton, Fremont, Mich.

WANTED—Catalogs of bee-keepers other than the A. I. Root Co.
A. E. Titoff, Medina, O.

WANTED.—Addresses of parties interested in poultry supplies.
Griggs Bros.
523 Monroe St., Toledo, O.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address Henry Alley, Wenham, Mass.

WANTED.—To furnish you with groceries at reduced prices. Send for our free catalog.
Vickery Bros, Evansville, Ind.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1 00 per month; $10.00 per year. Daily, except Monday.

For Sale.

For Sale.—A limited amount of ginseng sets.
C. G. Marsh, Kirkwood, Broome Co., N. Y.

For Sale.—Red Clover and Italian Queens Send for circular,
G. Routzahn, Biglerville, Pa.

For Sale.—Melilotus seed, $2.50 per bushel: 2-oz. pkg., 10c.
W. P. Smith, Penn. Lowndes Co., Miss.

For Sale.—300 colonies bees, good house and seven acres alfalfa.
W. C Gathright, Las Cruces, N. M.

For Sale.—75 colonies of bees packed in chaff on summer stands; also 200 lbs. of comb honey.
Route 3. H. Wilber, Morenci, Mich.

For Sale.—57 New AE5 8 fr. Root's Dovetailed hives in flat for $55.00, or 10 for $10; also 10 new 2S 8-frame supers in flat for $3 50.
R. S. Chapin, Marion, Mich.

For Sale.—Pure maple syrup Prices quoted on application. Address
Perry C. Kellogg,
Hinckley, Medina Co., Ohio.

For Sale—White Leghorns, extra laying strain, cockrels and hens; eggs, $1.50. Reference, bank.
P. Hostetler, East Lynne, Mo.

For Sale.—Redwood bee-hive bodies for 10 Langstroth frames, 30c each; also Hoffman frames.
H. Vogeler, 210 Davis St., San Francisco, Cal.

For Sale.—Single-comb White Leghorn eggs from extra laying strain. 15 $1.00 30, $1 75 100. $4.00
C. M. Woolver, Richfield Springs, N. Y.

For Sale.—5000 L. extracting combs, in first-class condition, at 10 c each. Also 200 8-frame painted bodies at 25c.
H. & W. J. Manley, Sanilac Center, Mich.

For Sale.—Carload of bees in perfect order, in Heddon hives (2 stories). Price $4 00 per colony, delivered at any one of three roads. Will pay freight to any railway station in lower peninsula of Michigan, or adjoining States. No foul brood in this part of Michigan.
O. H. Townsend, Otsego, Mich.

FOR SALE.—Twenty Danzy. Supers, used once, price 60c; 25 8-frame L Supers, good as new, price 30c; 50 shallow Ex. Supers, new, price 30c.
W. D SOPER, R. D. 3, Jackson, Mich.

FOR SALE.—500 two and three frame nuclei with queens, at $1.80 and $2.50 each. Also bees by the pound at $1.20 Per pound with queen.
CANNON & BROWN, Greenville, Ala.

FOR SALE.—Leather colored Italian bees, with a tested queen in each colony, at $6.00 per colony. Good strong swarms. In lots of ten, $5.00 each. No disease.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Honey shipping-cases holding 24 sections, 4¼x4¼, showing four made from clear white basswood, strictly high-grade work. Your correspondence solicited. The FORBUSH PLANING MILL CO.,
Gowanda, N. Y.

FOR SALE.—8-frame 1½-story hives made of Michigan white pine. Root's frames inside. Five, $5.00; 10, $9.00. Nailed and painted, ready for bees, $1.50. Sections until April 1st at last year's prices. Send for list.
W. D. SOPER, R. F. D. No. 3, Jackson, Mich.

FOR SALE.—Apiarian outfit of small house and acre of land with 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot.
X Y Z, GLEANINGS.

FOR SALE.—My apiary outfit consisting of Dovetailed-hive bodies filled with frames of comb; honey and wax extractors, comb-buckets, and other fixtures. Will fill orders as received until sold. Saw-mill well located almost new. Also good farm well located. All for sale cheap.
B. J. CROSS, Auburn, Alabama.

FOR SALE.—In Canada, fine garden property, three acres 50 colonies bees and supplies, garden, and carpenter tools, rigs, foot-power machinery, splendid house of 10 rooms, two wells, cistern, apples, pears, plums, grapes, small fruit, hedges, and ornamental trees. Near Woodstock. Particulars of F EDEN,
Eastwood, Ont.

FOR SALE.—An apiary and farm, consisting of 120 acres good grazing land, and only fifteen minutes' walk from the city of Cardenas, and on the public road; having on said place 350 hives (American system), all necessary supplies to handle these, good house on grounds, numerous fruit trees, plenty of shade for bees, thirty odd head of cattle raised on the place, among these six fine American milch cows (Holstein stock) selling nice little amount of milk daily, good-riding saddle-horse, ox wagon with fine yoke oxen in fine condition, two good water wells, large pineapple-grove now producing, and with capacity to plant, if required, 60 000 henequen plants. Sell for cash, or on time with satisfactory guarantee. Address
AMERICAN BEE HIVE, P. O. Box 44, Cardenas, Cuba.

50c SEED
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FREE

Send us today, your name and address on a postal and we'll mail you **FREE** our handsome illustrated Seed Catalogue containing **Due Bill** and plan **good for 50c worth of Flowers or Vegetable Seeds FREE.** Your selection to introduce

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direct from grower to planter, from Saginaw Valley Seed Gardens. Seed Potatoes, Vegetables, Flowers, Field Seeds and Plants.

100,000 PACKAGES SEEDS FREE on above plan. Write quick. Send names of neighbors who buy seeds. $100 cash for best list. See the catalog.

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Almost every one is thinking of planting garden now. To have the best garden you must plant the best seeds. Let us start you on the road to success.

We are successors to the seed business of Mr. A. I. Root. "The best seed at the lowest prices" was his motto and the one we are following.

Have you seen our catalog? Write us a postal, mentioning Gleanings, and we will send you a copy, and include a trial package of our improved Fordhook Fancy tomato.

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Seedsmen,
Medina, - - Ohio.

SEED POTATOES
500,000 BUSHELS
FOR SALE CHEAP

Largest seed potato growers in the world!
Elegant stock. Tremendous yields.
From 400 to 1000 bushels per acre.

FOR 10 CENTS

and this notice we send you lots of farm seed samples and big catalogue, telling all about Teosinte, Speltz, Peaoat, Aerid Land Barley, Macaroni Wheat, Bromus, Earliest Cane, etc. Send for same today. F

JOHN A. SALZER.
SEED CO. LA CROSSE, WIS.

SWEET-POTATO SEED

Sound, bright stock; most popular varieties. Send for descriptive price list. :-: :-:

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AGENTS WANTED—New Ohio Map just published. Largest and best on the market. Write for terms and territory at once and get to work.
RAND, McNALLY & CO., Chicago, Ill.

ANY ONE wishing to loan or invest money in Cuba on good security, and large interest, write
JOSEPH CLARK, Caballos, Cuba.

JOS. NYSEWANDER, DES MOINES, IOWA.

--Root's Goods at Root's Factory Prices--

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OUR NEW BUILDING,

just completed, and built especially for our large and increasing supply trade, is filled with the largest stock of supplies ever carried in the West.

Eighteen years in the supply business, with last year by far the largest in our history, proves we give satisfaction. We can satisfy you. Our goods are unexcelled, and our prices are right. Remember there are discounts on orders received now. We are centrally located, have every convenience for handling business with dispatch, and our shipping facilities are the best. ◆ ◆ ◆

Write to-day for our large illustrated FREE catalog. Address

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Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.

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LEWIS' GOODS AT FACTORY PRICES.

Write to us to-day and say what you want and get our prices. New Catalog of 84 pages. It is free. We also handle

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C. M. Scott & Company,
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The Best Bee-goods in the World

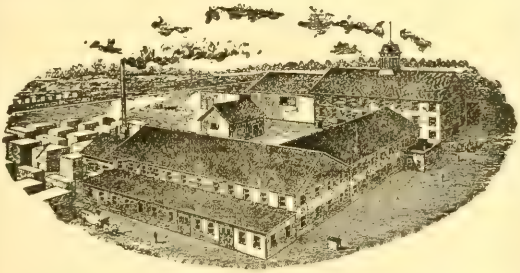
are no better than those we make, and the chances are that they are not so good. If you buy of us

Yon will not be Disappointed. We are undersold by no one.

Send for new catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cts. a year; especially for beginners.

The W. T. Falconer Man'f'g Co.,
Jamestown, N. Y.

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices.
Order of him and save the freight.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
Chas. A. Meyers, Leipsic, Ohio.

SPECIAL NOTICE
Special Notices
By Our Business Manager

BEESWAX MARKET.

As spring approaches, the market price of beeswax is somewhat firmer, and we will offer, until further notice, 29 cts. cash, 31 in trade, for average wax delivered here.

BUSINESS BOOMING.

Although we have shipped at least twelve more carloads to our dealers than we had done up to the same date last year, yet we are more than twenty-five cars behind on carload orders. From reports received we find the trade of several of middle-western dealers has more than doubled over their trade a year ago.

FAULTLESS SPRAYER.

We have sold a good many hundred of these sprayers in the past few years. They are used for a variety of purposes such as spraying potato-vines and other plants; for insect pests, spraying of cows and horses with kerosene, to keep off the flies, etc. Desiring to close out what stock we have on hand we offer them at the following special cut prices. All tin, 27 cts. each; $3 00 per dozen. Tin and galv. iron 35 cts. each; $4.00 per dozen. All brass, 55 cts. each; $6 00 per dozen.

EXTRACTED HONEY.

We keep on hand a large stock of extracted honey from different sources, and are prepared to supply at the prices shown below. The following flavors are usually in stock.

PACKAGES.

By far the largest part of our honey comes put up in the 60 lb. square tin cans, two cans in a case. We also get some in kegs and barrels We agree to furnish it only in such packages as we happen to have. Unless you find price quoted for different packages, it is understood that we furnish only in 5-gallon and 1-gallon cans.

PRICES.—F. O. B. MEDINA, CHICAGO, OR PHILADELPHIA

Kind.	In single five-gallon cans.	1 case of 2 five-gallon cans.	10 cases of 2 five-gallon cans.	In one-gallon screw-top cans.	Case of 6 or 10 one-gallon cans.
	per lb	per lb	per lb	per gal	per gal
White Clover	8½	8	7½	1 20	1 10
Basswood	8½	8	7½	1 20	1 10
Alfalfa	8½	8	7½	1 20	1 10
Orange	7	6½	6	1 10	1 00
Amber..........	6½	6	5½	1 00	90

Special Notices by A. I. Root.

A SCATHING INDICTMENT—GAMBLING IN THE HOME.

When I copied the above tract in our issue for Feb 1 I failed to say that it came from Mr. S F Eastman, Uniontown, Pa., a missionary in the employ of the American Sunday-school Union. He will be glad to furnish at a very low price as many of the tracts as you may care to use.

SHALLOTS — THE BEST-KEEPING POTATO ONIONS KNOWN.

We have two or three bushels left of this desirable early onion that we can furnish at 20 cents a quart postpaid. The shallot is superior to all other onions, because it can be kept almost anywhere without sprouting. In fact, they have been kept hard and firm clear through the summer, ready for planting the second year. If you have had trouble with sprouted onions in the spring you had better try some shallots. Plant them just as soon as the frost is out of the ground—the sooner the better.

THE NORTHERN MICHIGAN BEE KEEPERS' ASSOCIATION.

We hope our friends in Northern Michigan will make a good turnout to the convention in Traverse City, March 30, 31. We have not only quite a lot of enthusiastic and successful bee-keepers in that region, but some of the most expert fruit growers and potato-growers found anywhere in the world. Besides, Traverse City is a very neat and pretty town of about 10 000 inhabitants. If you have never been there it may be worth while to visit a town where there is no coal smoke to make every thing sooty and black. After the convention I expect to spend a week or more at the cabin in the woods, making maple sugar and looking after our peach-trees, etc.

THAT WONDERFUL FARM OF 15 ACRES NEAR PHILADELPHIA.

We have now on hand about half a dozen excellent articles describing this wonderful farm, and almost as many more clippings from the leading agricultural papers in regard to it. The U S. Department of Agriculture has got hold of it and they expect to put out a bulletin. In fact, so much has been said about it that the proprietor (Rev. J D Detrick of Flourtown, one mile from city limits) has asked the government to pay him a salary for stopping his work to receive visitors, answer questions, and making his place a general thoroughfare for the whole United States. Perhaps we shall not be able to use all the articles on the subject; but I confess I feel a little bit proud of the way in which the readers of GLEANINGS keep us posted on what is going on in the world. Many thanks to you all, dear friends.

Kind Words from our Customers.

I should be lost now to have GLEANINGS stop coming twice a month. Please put me down as a life subscriber; and when Uncle Amos or any of the GLEANINGS family come east, or to visit their Boston branch, my good wife and I shall be much pleased to entertain them at our home. F. M. TAINTOR.
Shelburne, Mass.

[Thanks for your kind invitation, friend T. We have a book to put down these invitations to call; and when we travel on the automobile or in any other way, if time will permit we propose to call on our friends, and get acquainted; so if you want your name on our book, do not be backward about saying so.—A. I. R.]

A SACRED AND SOLEMN RESPONSIBILITY.

Just when I think I begin to understand A. I. Root he says something I do not believe; but before long he has me thinking the same way he does. I hope he may live long to cheer the readers of GLEANINGS with his Home talks. J. T. LEWIS.
Erie, Col.

[Friend L., I thank you for your kind words; but if there are many like you it almost makes me tremble with the responsibility that rests on my shoulders; and, come to think of it, this same responsibility rests on every teacher and every editor, more especially the editors of our home periodicals. It illustrates how exceedingly careful we should be, we who have the confidence of a large class of people, that we make no mistake and do not go wrong. My daily prayer is that God may keep me from teaching error. I presume that you here allude to scientific matters, weather-prophets, Electropoise, etc. Now, in order that I may keep well posted in these matters a great part of my time is spent in consulting the leading scientific periodicals of the age. I am studying hard to keep posted, and up to the times, in all departments of science as well as of agriculture and all rural industries. When matters come up before me where I need help, our Ohio Experiment Station (and others) are always glad to give me aid The Department of Agriculture at Washington has often helped me; the Weather Bureau is quite frequently consulted, and last but not least, Prof. Wiley, the United States Chemist, has often read my articles on scientific matters, and has expressed a willingness to help me teach *orthodox* science. In matters of health, the ablest physicians of our land frequently give me advice in regard to what I write.—A. I. R.]

SPECIAL ATTENTION

SHOULD NOW BE

GIVEN TO YOUR QUEENS.

YOUR SURPLUS HONEY

Will Depend on the Age and Quality of the Queen Mother.

KNOWING how much depends on having such queens as can be relied on to produce honey, we use extra care in the selection of our breeding stock. Selected queens are given one year's trial in our outyards, and those only are used for breeding that have shown a marked superiority in the yield of surplus honey. Tested and select tested queens can be had on receipt of order, and nuclei and untested queens by April 1.

We give special attention to the shipment of nuclei and our large apiaries enable us to supply them in any quantities promptly. One pleased customer says: "The bees came on the 27th, and they are simply elegant."

For prices of bees, queens, hives, and other supplies, send for our 64-page catalog.

J. M. JENKINS,

WETUMPKA, = ALABAMA.

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NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

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Send for Our FREE New Illustrated Catalog and Price List.

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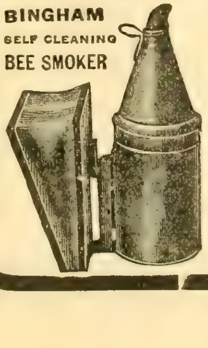
RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the **Cleanest and Purest,** and in all respects the best and most desirable. Send for samples. Working wax into foundation, for cash, a specialty.
Beeswax always wanted at **Highest Price.**
A Full Line of Supplies, Retail and Wholesale.
Send at once for catalog, with prices and discounts.
E. Grainger & Co., Toronto, Ont., sole agents for Canada.

GUS. DITTMER, Augusta, Wisconsin

ORIGINAL PATENT BINGHAM SMOKERS.



4-inch heavy tin Smoke Engine, 381 holes in steel fire-grate, postpaid	$1 50
3½-inch Doctor, 286 holes in grate	1 10
3-inch Conqueror, 220 holes in grate	1 00
2½-inch Large, 170 holes in grate	90
2-inch Wonder, 110 holes in grate	65
4-inch heavy Copper, 381 holes in grate	2 00

Twenty-five years the only patents granted, most improved, standard, and best in the world. *Never a complaint.* All have shields, bent cup, and coil-wire handles. Never go out, or throw sparks or soot. Bingham Smokers are not like other smokers. I would like to show you the many letters I have, but will summarize them below: "Don't see how they could be improved;" "Best I ever used;" "Perfect satisfaction;" "Perfection itself." The latest unadvertised patent, dated 1903, sent by the inventor on receipt of 10c above regular prices of the 3 larger sizes of smokers.

T. F. BINGHAM, FARWELL, MICH.

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MEDINA OHIO
U.S.A.

Eastern Edition.

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OVER A

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Lewis' Perfect Sections.

5000 LBS

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All other supplies in proportion. Discounts on early orders. Sixty-eight-page catalog now ready Send us a list of the goods you want, and we will tell you what they will cost. We want to hear from you.

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A. G. WOODMAN
Grand Rapids, - Mich.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

Beeswax wanted.

George E. Hilton, Fremont, Mich.

Any man in Michigan that keeps bees — one swarm or five hundred, — is the man we are looking for.

Are you that man?

Our catalog for the asking.

M. H. Hunt & Son.
Bell Branch, Mich.

we sell the Danz Hive Send for booklet.

we sell Root's Goods in Mich i gan

C. H. W. Weber,

Headquarters for

Bee-Supplies

Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

* * *

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

I Shall be Pleased to Book Your Order for Queens; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above.

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white, and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

MILWAUKEE.—The market on honeyhas not changed very materially since our last report The supply continues ample to supply the demand. The sales are slow, yet it is going out, but not as fast as we or shippers desire, and there may be a probability of some comb honey being carried beyond the spring season; Yet, as there is a good margin of time before another crop, we are hoping it will all sell at fair values, and we shall do all we can to get a fair value for all fancy stock. We quote: Fancy 1-lb. sections, 12@13; A 1-lb. sections, 11@12½; inferior grades nominal—10@11. Extracted white in barrels, pails, cans, 6½@7. Beeswax, 28@80.
A. V. BISHOP & CO.,
March 23. Milwaukee, Wis.

PHILADELPHIA.—The season for selling honey has been prolonged on account of the cold weather, which has certainly been very fortunate for the bee-keeper, as there never was as much honey shipped in so late in the season to be disposed of. It has broken the price considerably, but there is still quite a demand, which otherwise would have fallen off. We quote: Fancy white comb, 13@14; No. 1, 12; amber and buckwheat, 9@10; extracted white, 7@8; amber, 6@7. Beeswax in good demand, 31. We are producers of honey, and do not handle on commission.
WM. A. SELSER,
March 21. 10 Vine Street, Philadelphia, Pa.

ALBANY.—Stock of honey here is working off better since weather became warmer, and looks more encouraging for selling out stock. The past three cold months have been not only very discouraging, but almost all honey hardened in the comb, and gives very poor satisfaction Prices are nominal now, from 8 to 13 cts for comb, according to condition of honey. Extracted slow at 6@6½ for buckwheat and 6½ for light grades.
MACDOUGAL & CO.,
March 23. Albany, N. Y.

KANSAS CITY.—The demand for honey, contrary to the usual market conditions at this time of the year, is slow, and only very low prices will induce the trade to buy in large quantities Fancy comb honey is selling at $2.25; No. 1 from 2.00 to $2.15; amber honey, and combs that are not well filled, are selling at just what prices the trade will pay. Extracted honey is moving very slowly; there is very little demand for amber, and white is selling at 6@6½. No demand for barrleed stock.
C. C. CLEMONS & CO.,
March 22. Kansas City, Mo.

CINCINNATI.—The honey market continues to be dull; if any thing, the prices on comb honey are lower; concessions are made on bigger lots. I quote fancy white comb from 12½@14. Sales on extracted are made at the following prices: Amber in barrels, 5¼@5¾; in cans ½c more. Alfalfa, water-white, 6@6½; strictly white clover for extra fancy, 7½@8. Beeswax, 30.
C. H. W. WEBER,
Mar. 19. 2146 Central Ave., Cincinnati, Ohio.

BUFFALO.—Demand for white comb honey is improving. There is a scare on about selling adulterated extracted honey, and the trade is afraid to handle extracted. Fancy white comb, 12½@13 A No. 1, 12@12½; No. 1, 11½@12; No. 2, 10@11; No. 3, 9@10; No 1, dark, 10@11; No. 2, dark, 9@10. White extracted, 6½@7; amber, 5½@6; dark, 5@5½. Beeswax, 28@32
W. C. TOWNSEND.
Mar. 24 Buffalo, N. Y

DENVER.—There is sufficient stock in this market to meet the local demand. No. 1 white, $2.50@2.75 per case of 24 sections; No. 2 white, $2.25@2.40 per case of 24 sections. White extracted, 7@7½. Clean yellow beeswax wanted at 28@30 cents per pound, according to color.
THE COLO. HONEY PRODUCERS' ASS'N.,
March 21. 1440 Market St., Denver, Colo.

BOSTON.—There is nothing new to note, either regarding the condition of our honey market or prices. The demand is naturally not so heavy as it was, owing to the warmer weather and the near approach of the maple-sugar season. Prices remain as before.
BLAKE, SCOTT & LEE,
March 22. Boston, Mass.

SAN FRANCISCO.—New comb per lb., white, 10@12; amber, 8@10; Extracted, water-white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Beeswax, 26@28.
ERNEST B. SCHAEFFLE,
March 11. Murphys, Cal.

TORONTO.—Honey is selling at retail fairly well; but there is very little demand for large lots at wholesale. Prices are unchanged. Comb, $1.50 per dozen on the average; extracted, from 6@8. wholesale; 9@10 retail in 5-lb. and 10-lb. tins.
E. GRAINGER & CO.,
March 19. Toronto, Ont.

COLUMBUS.—Fair demand for honey, but prices lower. White ranges from 12@13 as to grade; amber, 10@11.
EVANS & TURNER,
March 22. Columbus, O.

FOR SALE.—I have a few more cases of comb honey (mostly buckwheat), which I will offer at a reduced price to close out.
N. L. STEVENS, R. D. 18, Moravia, N. Y.

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.
G. W. WILSON, R. R. No. 1, Viola, Wis.

FOR SALE.—Thirty barrels choice extracted white-clover honey. Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps.
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OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

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CONVENTION NOTICES.

The Connecticut Bee-keepers' Association will hold their spring meeting in the capitol, at Hartford, on April 28 1904, to begin at 10: A. M. All bee-keepers and their friends are cordially invited to attend. A question-box will be opened and several interesting essays presented.
E. E. SMITH, Sec.

A convention of bee-keepers will be held at Williamsport, Pa., April 12, at 1:30 P. M., in the courthouse, for the purpose of organizing a State Bee-keepers' Association, and also for taking such measures as may be deemed necessary to secure legislation for the protection of bee-keepers' interests and the prevention and cure of bee diseases. The importance of the matter is so great that every bee-keeper who sees this notice is urged to interest himself in this movement, and, if possible, attend this convention.

Muncy, Pa. D. L. WOODS, SEC.

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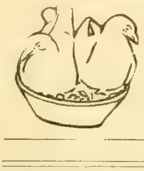

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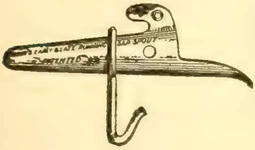
W. Z. HUTCHINSON, Flint, Mich.



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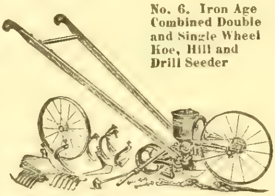

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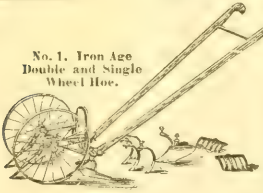

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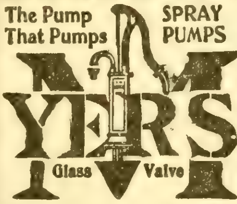

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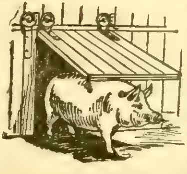

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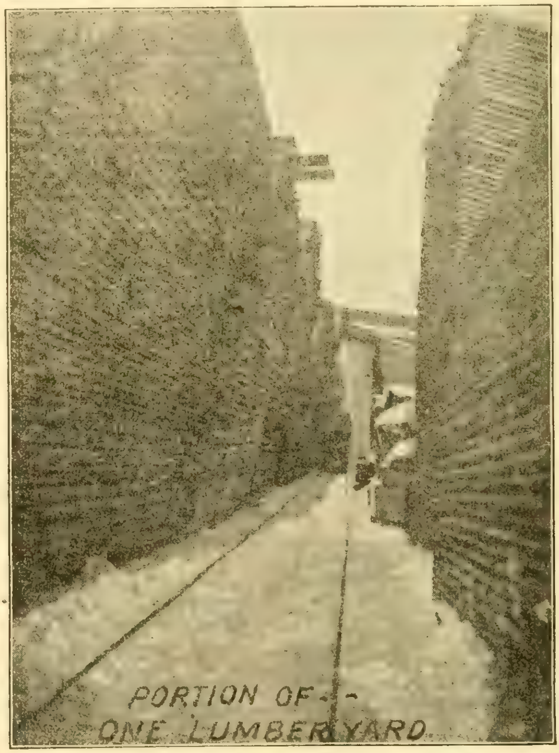

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Illustrated Semi-Monthly

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Vol. XXXII. APR. 1, 1904. No. 7

Stray Straws

By Dr. C. C. Miller.

I VOTE for bees with stings, if the thing is ever settled by vote.

EXCLUDERS are not necessary to keep the queen out of section supers, if sections are *filled* with foundation. If you use little starters in sections, it may pay you to use excluders.

ALLOW me to supplement the excellent advice of friend Doolittle, p. 274, by advising Mr. Jones to plant also cherries and plums for their excellent service before apples bloom.

LET ME ADVISE bee keepers, especially the younger ones, not to omit reading such articles as that by E. F. Phillips, p. 285. A substantial foundation of the right kind of theory may be worth more than you suppose in your future practice.

I AM SURPRISED that sweet clover does not flourish about Borodino in muck and hardpan soil. It does here. Hardpan from the bottom of the cellar, in which nothing else cares to grow, seems just to suit sweet clover. How is it about Medina? [Here too.—ED.]

R. A. WHITFIELD, I'll tell you another thing that'll happen to you if you put brood over your sections: The bees will seal the sections more or less dark with bits of black comb brought down from above. They did for me. P. 288. [Yes, that is our experience also.—ED.]

DISCUSSION at Colorado convention (*American Bee Journal*, 135) shows considerable inclination to return to selling by weight instead of by case, although, with the limits placed, their present method is nearly by weight; indeed, Mr. Aikin said, in convention, "In fact, we are selling by weight."

THE QUEEN "takes several small preparatory flights," page 286. Are they really preparatory, or only unsuccessful? Is not the first flight often if not usually successful? [Possibly both. It is natural to suppose, however, that the queen goes out into the air for one purpose only; and, failing to accomplish that purpose, she makes other flights until successful.—ED.]

MR. E. W. ALEXANDER, in Eastern New York, tells in *Review* that with 300 colonies in one yard, colonies on scales showed a gain of 10 to 18 lbs. a day. Last summer he had about 700 colonies in the home apiary, and intends to have many more this summer. Is it possible that Coggshall and others are foolish to keep little bunches of 50 or 100 colonies five or ten miles off that might be kept at home just as well?

I EXPECTED to hear that you were using electricity to heat a wire when cutting candied honey, p. 276; but I expected also that you would be using a full set of wires at a time instead of a single wire; then one cut in three different directions would leave your can of honey in cubes. [One wire will cut the cakes fast enough. Three or four wires could not be used. Sometimes the wires stretch; sometimes there is a soft streak, and the same pull on all four wires would not give satisfactory results. It is a little trick to cut with even one wire.—ED.]

THE CHANTRY introducing cage has been sent me by E. F. Atwater, who has used it with great success. Its construction is based on the idea that strange bees will not molest a queen while both are in a cage. A short candied passage admits the bees to the queen in a few hours. Instead of pasteboard on the outside of this candy is a piece of excluder, so that the bees may freely pass in and out, leaving the queen still a prisoner for perhaps two days more, while the bees eat the candy out of another passage 2½ inches long. Now, why isn't that all right?

SPEAKING of the fertilization of the egg, E. F. Phillips says, p. 286, "If it is to be a worker egg it receives from the spermatheca *one* spermatozoon." I suppose that italicized "one" means "only one." I think Von Siebold was the first to discover spermatozoa in bees' eggs, "and in each of thirty, out of forty, of his prepared female eggs, he found from one to five spermatozoa." See *American Bee Journal* for 1861, p. 125. [This is respectfully referred to Mr. Phillips, although I am satisfied he was fully cognizant of this statement, and was probably in possession of later evidence of a more conclusive character on which he based his statement in question.—ED.]

GLEANINGS seems to favor putting bees part in cellar and part out, p. 275. Good thing to experiment that way to find out which is best; but I suspect that, when Doolittle settles to a dead certainty which way averages the best in a series of years, he'll use only that best way. [Yes, probably. Possibly Doolittle's locality is of such a nature that it is best to "put his eggs in two baskets." But there are some localities where, certainly, outdoor wintering would give much better results in a period of ten years; and it is equally true that there are other localities where the indoor plan for the same time would show the least loss.—ED.]

A FRIEND wants to know about my trying the Hershiser plan last summer. I did not try it on a large scale; but when, in the flush of the harvest, I put the empty super on top, there was extra waste in the way of burr-combs in the nearly finished supers below, and the case was aggravated if only two supers were allowed. I think I should have lost several hundred dollars if I had submitted all to the same treatment. With weak colonies, or in poor flows, it is all right. [Our season for comb honey, at least last year, was almost a failure, and we were not, therefore, able to come to any conclusion with regard to the Hershiser plan of tiering over rather than tiering under; but it is easy to see that for you at least it was more feasible to tier under—that is, putting an empty super under one partly filled — than putting the empty on top.—ED.]

L. H. CREMERS says (*American Bee Journal*, p. 189) that buckling of foundation is because foundation expands with heat and contracts with cold, so when foundation that was wired cold is put into a hive, the expanding makes it bag. He puts in wire and fastens foundation to top-bar in winter, then in summer he imbeds the wire in a very warm place and immediately puts it into the hive. [There may possibly be something in this. Our foundation has nearly always been imbedded within at least a week before the time it was given to the bees. As we have had very little trouble from buckling, this may account for the fact. I should like to hear from others on this point. I might add further that, when we put in foundation, the pile is always warmed up by being set in a window where the sun shines. The foundation is imbedded when the sheet is warm; and very often it is put into the hive as fast as it is imbedded.—ED.]

IF THE RAILROADS keep on they will soon put out of business the Prohibitionists, Anti-saloon Leagues, etc. "The general rules against intoxicants that are now enforced on all railroads," says a Chicago daily, "have, up to this time, applied only to the employees of the train and operating departments. Now the St. Louis and San Francisco and the Chicago and Eastern Illinois roads have determined no longer to allow expense accounts for wine feasts among traveling, district, and general agents." [But the Prohibitionists and the Anli-saloon League have been keeping up the agitation that makes all these progressive moves possible. There is nothing the saloon men fear more than *agitation* and a *good airing*. They love darkness rather than light. As long as their deeds can be held under cover, so long will they continue to rob our boys of this life and the one to come.—ED.]

WE ARE TOLD, p. 293, that few city customers "who have ever tried genuine buckwheat honey would be willing to exchange it for the finest grade of white clover." Now, what under the sun made the *Country Gentleman* print such nonsense as that? Yes, I know that some people very much prefer buckwheat or other dark honey, but the great majority, city or country, much prefer the taste of the light honeys. [If you were to stay a few weeks in the locality where the *Country Gentleman* is published (Albany, N. Y.), and talk with consumers, you would possibly, from their testimony, think there was no honey in the world that was pure and good but buckwheat. The *Country Gentleman* was evidently basing its statement on the current belief and preference in its own immediate locality; and its statement, when confined to that locality, is not far wrong.—ED.]

THE OFFICIAL REPORT of the committee of the insurance companies says that the great Baltimore fire was started by the dropping of a match, or a lighted cigar or cigarette thrown down through a broken deadlight in the pavement above the basement of the Hurst building, falling upon some inflammable material. If the city had had an ordinance forbidding smoking on the streets, it would have been in the interest of common decency, and, incidentally, a saving of some millions. Just now Chicago is having a lively time making arrests for spitting on the streets. Why not make smoking go with spitting? [It would not be practicable, because public sentiment would not favor putting the two on the same plane. Spitting on the sidewalk is repulsive to every one. There is no lobby that would dare to go into a legislature and argue that spitting on the sidewalk is a good thing. It is easy to pass laws against bad things when every one is in favor of abolishing the thing that ought to be effaced by law; but if we were to take a poll of a vote as to whether smoking should be allowed on the streets or not, I think you would find there is almost as large a majority in favor of it as there would be a majority against spitting. That is not saying, however, that majorities are always right.—ED.]

IN BAVARIA a man named Hofman put a dish of poison out in his apiary in order to destroy the neigboring bees that were bothering him. He shut up his own bees meanwhile for safety. The experiment was a grand success, for in a short time eight of the neighboring colonies were destroyed. The injured parties rushed into the yard, found the poison, proved the identity of that and that in the dead bees, and brought him to trial, where he was fined $75 and costs.

W. H. LAWS (*Review*) uses 100 to 150 bees, never more than 200, in his queen-fertilizing nuclei. He keeps no *permanent* nuclei. Two little trays, ¾ inch deep, 11¼ inches long, and 4¼ wide, hinged at the bottom with leather strips, clamp tightly between them a frame of the same dimensions containing a comb of solid honey. A five-sixteenths bit bores an entrance in the end-bar, near the bottom. In this the queenless bees, filled with honey, are fastened; and when they begin roaring, the virgin is run in the entrance and the entrance closed. Afler a confinement of 24 hours or more the entrance is opened, and a virgin of right age will be fertilized within 24 hours, when excluder zinc prevents the escape of the queen. When she lays, all are emptied out, and a *fresh* lot of bees given with another virgin. [Mr. Laws and Mr. Pratt can probably make these small nuclei work; but the average person will probably make a failure of it. The Laws plan, however, is as practicable as any thing I have seen in print.—ED.]

E. F. ATWATER has a simpler and better hive-stand than mine, as I mentioned on p. 115. He writes me: "The funny part of it is that, since 1898, I have used that kind, and, until 1902, I thought I was using the Dr. Miller stand pure and simple. I must have misunderstood your directions for making them." The question is: Am I to be condemned for handling the English language so bunglingly as to be misunderstood, or commended for securing thereby a better stand? [Your language was plain enough, I think; for when I first saw your description I pictured out in my mind just the hive-stand you are using. But I agree with you that friend Atwater has improved it by nailing the boards the other way, so that the edges, not the sides, rest on the ground. We have many hundreds of such stands in use for single hives. They have the advantage that the sharp edge will imbed itself into the inequalities of the ground if the stands are set out in the early spring when the ground is soft. The flat board edges would not so adjust themselves. I am inclined to think that you would throw away your hive-stand if you would once try the Atwater improvement.—ED.]

SO YOU THINK, Mr. Editor, that I'm a firm believer in some form of ventilation in cellar, p. 285. That hardly expresses it strong enough. Every year its importance grows on me. During most of the past winter one of the outside cellar doors 6×2½ has stood wide open day and night, except for a screen of wire cloth, and the door from the outer room to the bee-room stood open all the time, and I'm pretty well convinced that they *didn't have enough ventilation.* The room was too crowded. "How do I know?" Well, one way I know is that the bees nearest the inner door, the ones that had the first chance at the air, kept the quietest in the cellar. This in spite of the fact they had the most light — more light than I think was good for them. Yes, sir; give me lots of air, both for folks and bees. [Our experience for the last two years has been emphatically in favor of ventilation; and I can not understand *why* there should be some good authorities who favor little or no ventilation. Perhaps they are deceived. Possibly much more air gets through the walls of their repositories than they suppose. Bees are almost as highly organized as human beings. In summer they require a great deal of air, just as we do. Cut off our ventilation, and what is the result? Disease and death. I believe the average beginner, at least, will be more successful if he gives the bees air than if he withholds it from them by keeping the repository closed tight.—ED.]

SOME TIME AGO, when it was argued that I would have brood to top-bar because splints didn't allow sagging, and sagging prevented queen laying up to top-bar at Medina, the editor said measuring showed there was no sagging there. A correspondent reminds me of this, and asks me to reconcile it with the position the editor now takes, that wires must be loose to allow sagging. Which goes to show how villainously inclined some people are to want to put a load like that on my shoulders when I'm not over-strong at best. [If there is such conflict (and I assume there is), it is due to the lapse of time and a change of conditions, not because I have necessarily changed my opinion. As years go on, there is a tendency toward a thinner and thinner foundation in the brood-nest. The brood-combs examined were probably built off from foundation made some years ago, when fewer sheets per pound were used than now, and in consequence there would be less tendency to sag. I remember the circumstances, and recall that they were taken at random from those we had had in use for a number of years. If you will compare the foundation-lists you will find there are more sheets of foundation per pound than there used to be for the same grade; and it is, therefore, necessary to provide for possible sagging, under some conditions at least. Now, after saying this much I am free to admit your splints would allow a lighter grade of foundation than our horizontal supports.—ED.]

Pickings from Our Neighbors' Fields by "Stenog."

Mr. Villuendas Herrero will be the future editor of our esteemed Spanish exchange, *El Colmenero Espanol*, whose editor died last December. He is well recommended.

* * *

In speaking of cheap insurance among bee-keepers in Germany and Austria, I said it was about 8 cents per colony. Dr. Miller sends me a clipping showing it is 8 cents per bee-keeper, without reference to the number of colonies he has. So much the better.

* * *

About eight bee-journals are published in Russia, most of which we expect to get on exchange. Mr. Abram E. Titoff, of this office, will have them for review. He is a native Russian, and the only man I know who can read and translate that difficult language for us. Mr. Titoff is a well-informed bee man, and has already given us some good hints.

* * *

The question of the legal prohibition of artificial honey having been brought up before the German Reichstag (Congreſs), it led the minister, Count Posadowsky, to make the following declaration:

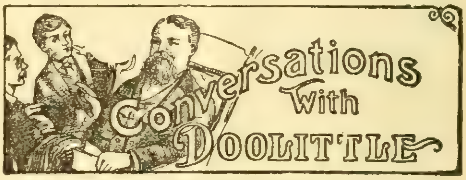
> I well know that much is eaten for honey that is not honey; and all those who eat honey at a hotel in Switzerland or elsewhere would be very wrong in supposing that it is by any means the natural product. One day in the federal council we had two samples of honey brought to us — natural and artificial. It was impossible to distinguish one from the other, for as yet there is no means for doing it by chemical analysis. The honey from Havana is entirely different from that of Lunenburg. When the day comes that will enable us to distinguish natural from artificial honey, the law will take hold of the matter.

* * *

The March issue of the *Bee-keeper's Review* is a beauty, and a decided improvement over any I have yet seen, on account of a better style of headings. Mr. Hutchinson has discarded the cumbersome and costly style he has long used, and now I do not see how he could make his pages more beautiful so far as type is concerned. The contents, too, of this number are of unusual interest and usefulness, taking in a wide range of practical topics. Mr. Hutchinson is a voluminous editorial writer, a large proportion of his journal being from his own pen. That alone is praise enough; but the kindly tone that has always pervaded his paragraphs is very commendable.

* * *

The *Pfalz Bienenzeitung* says the ancient bee-keepers of Egypt were in the habit of putting their bees on boats in October, and ascending the Nile slowly, stopping here and there in order to allow the bees to gather nectar in that spot. On page 83, 1889, I gave an article, with illustration, showing how this is done even now. But the idea is not peculiar to the Egyptians. *L'Apiculteur*, one of our best French exchanges, says, "There is nothing new under the sun. The Russians have copied the Egyptians. Some boats, carrying a garden of honey bearing plants, forming a veritable apicultural garden, descend the large rivers of Russia, explaining to the people along the shore the benefits of apiculture. We are informed that the Russians employ the same process to popularize new methods in fruit culture." There is a decidedly poetic aspect to that phase of bee-keeping. No valid argument could be raised against movable frames in that case, as the whole business would be a moving spectacle. It is to be suspected, however, that constant governmental interruption in Russia would make the work rather disagreeable. That method seems to be entirely out of vogue in the United States.



Conversations with Doolittle

SETTING BEES FROM THE CELLAR.

"Good morning, Mr. Doolittle. This is a fine morning."

"Yes, Mr. Barker. And it seems nice to have a little something springlike, after the long cold winter we have had."

"Yes. And this nice morning made me think that it would soon be time to get the bees from the cellar, and I came over to have a little talk with you in regard to the matter. When should I set them out, and how should I do it? This is the first time I ever tried wintering bees in the cellar, so I am 'green' in this matter of setting out."

"As to time of setting out, there seems to be a difference of opinion among our best apiarists. Some think that, by setting bees out early in March, when the first warm days come, they will raise young bees in sufficient numbers to take the place of the old bees that are lost and worn out of old age later on, when they commence to gather pollen, so that, in case of early setting cut, there is little or no spring dwindling."

"Well, that looks a little reasonable. But what about those who do not agre ?"

"Other good bee-keepers are equally positive that bees should in no case be set from the cellar till steady warm weather is likely to occur, giving the time for settled warm weather as commencing with the blooming of the elm and soft maples. These last argue that, with the warm weather, each old bee will nurse and bring on to the stage of action from two to five young bees, hence there will be no spring dwindling, but, instead, a hive full of bees prepared for an early honey harvest, which could not be the case where bees are set out early, and using all their vital energies to keep the cluster warm enough to nurse a little brood, which will not mature nearly fast enough to supply the waste of old bees which are lost in the cool weather of early spring, in their vain search for water, pollen, and early flowers."

"Well, that sounds as reasonable as the other, except the water part. I should suppose there would be more water at this time of the year than at any other."

'They do not argue that there is any scarcity of water at this time of the year, but that the bees in going for it perish by the thousands in becoming chilled and benumbed by clouds passing over the sun while they are taking their load of cold water, or by their getting into the water and immediately chilling to death in their benumbed condition."

"What shall I do where there is such a disagreement as this? Which shall I follow?"

"My way of arriving at a conclusion in such a case as this has been to set a few colonies out as early as days sufficiently warm occur, the latter part of March, and then set out a few at a time on each occurring warm day, till pollen becomes plentiful from the soft maple and elm, at which time *all* agree that the bees should be on their summer stands. Of course, such setting out as this can apply only to the home yard; for when we go to the out-apiary it is a matter of economy to set all out on the day we are there."

"Did you arrive at any definite conclusion in the matter, so you are positive which is best?"

"Well, no, not exactly. Very much depends upon the way the season turns. Some years the bees early set out seem to do the best; other years those set out late have a decided advantage. One year I did not set out the larger part of the bees till the elm and soft maple were past their height of bloom, and witnessed something I never saw before, which was, bees by the hundreds coming in loaded with bright red and yellow pollen, within half an hour after the colonies were placed on their summer stands. That it was possible for one old bee to be the means of placing on the stage of action five bees to take the place of itself, was apparently proven that year; for, within 30 to 35 days from the time of setting out, many of these colonies were nearly or quite ready to swarm, and not one colony showed any signs of spring dwindling. Within 21 days from time of setting out, nearly every comb in the hive was filled with brood, and so perfectly solid that, when the young bees began to emerge, the hives were filled to overflowing in a few days."

"Then you would rather favor the plan of late setting out?"

"To tell the matter just as it is, I am generally from ten days to three weeks in getting my bees out, and in this way I am quite sure of a full success with a part of them, no matter how the season turns. Long ago I came to the conclusion that it was not wise to have all of the eggs in *one* basket."

"I think I will try the slow-setting-out plan with mine, as there certainly can be no great loss by this way. Now how is the setting-out done?"

"At the out-apiary I always have a man help me, and we put a rope under the cleats of each hive, when he takes hold of one end or loop of the rope and I the other, and we carry them out without jar, and set them on the stands as quickly as may be so as to get all out to have the benefit of the midday sun."

"But I have no man with me; and to hire one for the setting-out of only a few at a time would be a sort of nuisance. How do you work at home?"

"I take my wheelbarrow, and on it spread several thicknesses of old carpet, or something of that sort. Two horse-blankets folded so as to be the size of the bottom of the wheelbarrow are about the best of any thing."

"What do you do this for?"

"This is to take off any jar that may come from the wheel to the barrow going over rough ground; for in moving bees it is always best to arouse them as little as possible. I now start a fire in my smoker, and with the two go to the cellar door, where I leave both and go in and bring out a colony, placing it on the blankets on the wheelbarrow. As soon as this is done I raise the front of the hive a little and blow in two or three puffs of smoke, which keeps the bees from coming out and getting lost on the way to their stands, and also from their stinging me, which those which fly out, where no smoke is used, are quite sure to try to do."

"I am glad you told me of that, for I should not have thought of their coming out and stinging, nor of their getting lost. But go on."

"As soon as the smoke is puffed into the hive the cellar door is shut so that the outside air shall not raise the temperature of the cellar, and thus arouse the bees inside, when the hive is wheeled to where it is to stand during the summer, the entrance adjusted, and the whole left as they are to stand thereafter."

"Do you take pains to put each colony back on the stand it occupied the previous season?"

"No. I know that some think that this should be done. But in setting out I always scatter the hives about, one here and another there, as far apart as possible at the first setting-out, then at the next setting-out fill in between, so that no two colonies will be in full flight at the same time.

This nearly or entirely prevents all mixing of bees, so that one colony is no stronger in bees, nor weaker, than it was when in the cellar. Some think that each colony should be set on its old stand of the fall before, as I just said; and where colonies stand close together, and are set out all at once, so that many colonies standing side by side are in full flight at the same time, I think it would be well to set them on their old stands. But with my plan of setting out, all this inconvenience is avoided."

"Thank you. I will be going now, as I see by the sun it is nearly noon."

Editorial
By E.R. Root.

There ought to be a heavy demand for bees this spring in the form of nuclei and colonies. Queen-breeders will do well to cater to this trade. We believe there is good money in it.

The failure of the honey-crop in California and Cuba, and the heavy winter losses in the lake regions in the northern parts of the United States, ought to have a toning effect on the market for new honey.

One of the finest honey confections is solid candied honey, cut into cubes about an inch square, dipped into hot chocolate. As chocolate will keep these in good condition, there is no reason in the world why such confectionery should not have a good and permanent demand. Already one of our subscribers is making this wire cutting a success, and he reports that the product moves off readily. It is something new and nice.

THE RELATION OF BEES TO FRUIT-GROWING.

This is the title of an address delivered by Mr. Wilmon Newell before the Georgia State Horticultural Society last August. It seems to be the most thorough treatise on this subject yet published. As any thing like a condensed review of it would be out of question here, and as the whole pamphlet can doubtless be had by asking for it, we will simply give two of Mr. Newell's most important propositions: 1. Insects are essential for the pollination of fruit-bloom; and the honey-bee does this more thoroughly than any other insect; 2. Bees take part in disseminating pear-blight and brown rot, but these would be practically as prevalent, even though there were no bees.

THE OHIO FOUL-BROOD BILL.

The Ohio foul-brood bill is still hanging fire in the legislature. It seems that, after it passed the House, and was in the hands of the committee of the Senate, it was discovered there was one little feature of it that was unconstitutional, otherwise it would have passed the Senate. From the latest advices the bill had gone back to the House, with the probability that it would pass. The bee-keepers of the State sent such a fusillade of letters into the Senate that the measure is quite sure to pass that body. Those who are back of the bill are "standing pat," awaiting developments with the confident assurance that the measure will become a law as soon as the necessary proceedings have been gone through with.

FREE-HANGING VS. SELF-SPACING FRAMES.

In the Question-box department of the *American Bee Journal*, in which the opinion of some thirty or more different bee-keepers have been called for, the question is asked, "If you were starting anew, would you use a free hanging frame? and if so, why?" The opinion seems to be about evenly divided between the loose unspaced and the self-spacing frame in a way that would almost seem as if the latter type of frame were not as popular as one would naturally suppose. But if this same question had been asked some twenty years ago the answers from almost these same people would have been almost unanimously against the self-spacing frame *in any of its forms*. The tide seems to be turning. If the reader could look over our order-books he would be surprised to see that the automatic spacer in some of its forms is called for nearly ninety-nine times as often as the unspaced, and we sell different styles of them.

Some have imagined that the self-spacer frame was not practical for extracted honey; but there are some large producers who do use them, and will have no others, and this seems to indicate they can be used successfully too. The notion that a Hoffman, for extracting, can't be spaced wide to get thick combs is wholly wrong, as I know by personal observation in some large apiaries of men whose colonies run over the thousand mark. In Cuba, for example, where we tried to push the unspaced frame, and where there is more extracted honey produced per square mile than anywhere else on the globe, the Hoffman self-spacer is used almost exclusively.

Of course, to the manufacturer it makes no difference which frame (spaced or unspaced) is sold or preferred, for there is just as much profit in the sale of the one as the other.

WINTER LOSSES UP TO DATE VERY SEVERE IN THE LAKE REGIONS.

On p. 277 of our previous issue I gave a summary of the hundreds and hundreds of reports that had been received from all sections of the country within a radius of a thousand miles of Medina. More reports have come in, largely confirming those first received—namely, that the winter losses for *outdoor* bees (not indoor) have been exceptionally heavy — probably the heaviest for over twenty years. The losses for the various States stand about the same as those indicated in our last issue, *except* that Michigan now appears to have suffered the most. Next come Ohio, New York, Pennsylvania, Wisconsin, Indiana. Strangely enough, no severe losses are reported in Illinois and Iowa. The States suffering the most are those bordering on the great lakes; and the one almost entirely surrounded (Michigan) appears to have lost the most bees. The reports go to show further that there are very few losses in any of the districts where the bees were wintered *indoors*.

Outside of these lake States the losses have been comparatively light except along the Atlantic coast and in a few scattering localities in New England. It appears that the matter of humidity as well as cold has something to do with the severe losses among the outdoor bees.

In nearly all the Western States, and all the States south of the Ohio River, the bees have wintered well. In Colorado and Idaho, where it is as cold as or colder than the lake regions, the losses appear to be very light.

We have received scarcely any reports from Canada. This seems to indicate that the majority of bee-keepers there winter indoors.

I should be glad to have our subscribers continue to send in reports; but let them be confined to *postal cards*, and *to two or three sentences*. It takes a great deal of time to read through and summarize so many letters, and long ones have to be passed over. Confine the statements to three facts: 1. The approximate losses for your locality, so far as you can gather; 2. Whether these losses relate to indoor or outdoor bees; and, 3. The character of the spring—whether favorable or otherwise.

HONEY FROM CORN; ROCKEFELLER SAID TO BE IN A NEW SPECULATION.

The article below is going the rounds of the papers.

JOHN D. ROCKEFELLER IS MAKING HONEY.

NOT THE REAL ARTICLE, BUT A CLEVER SUBSTITUTE MADE FROM CORN JUICE.

John D. Rockefeller now makes artificial honey with as much enthusiasm as he formerly pumped petroleum out of the ground years ago. He puts corn into water, and boils it with a little sulphuric acid. Then he puts in some lime to neutralize the acid. This forms a precipitate of sulphate of lime. He separates the sulphate from the corn juice by running the mixture through a filter press. The result is crude glucose, which so resembles real honey in flavor and color that it takes an expert to distinguish it from the genuine product.

There is one objection to the glucose honey. It retains, no matter how much it is refined, a certain trace of the sulphuric acid. Commission men say they can taste the acid. Chemists declare that the acid rots the teeth. In another generation or two, from this cause alone, they contend, there will be hardly a child with sound teeth

Mr. Rockefeller is doing his best to get rid of the sulphuric acid. He has offered, it is said, $500,000 to any chemist who can produce glucose from corn as cheaply as by his present process, without the use of sulphuric acid, or, at least, without having the slightest sulphuric acid in the corn juice.

The crude glucose Mr. Rockefeller dilutes with real honey, puts up in nice looking glass jars with fancy labels, and sends all over the world. Grocers sell it to the unsuspecting public, and little children eat it with delight.

The crude glucose is used in tremendous quantities to adulterate molasses. There is very little pure molasses in the market since Mr. Rockefeller got into the glucose business. Corn juice is very much cheaper than cane juice.

To refine glucose Mr. Rockefeller has it poured into big vats, whence it passes through a charred bone dust, and comes out as a colorless sticky liquid, like glycerine. which is growing more popular every day with bakers and confectioners. They buy it from Mr. Rockefeller in carload lots, and use it for cheap candy and icings.

Mr. Rockefeller expects to make a million tons of glucose next year or the year after. Some of the distillers say if he keeps on at this rate there will soon be no corn left for whisky.

The above has been sent us several times, It is the best kind of campaign document. Let it go the rounds of the press. Of course, it is a sensational article written by some reporter who wants to create a stir. A little examination will show that the article is self-contradictory. In the first paragraph we are told that it takes an expert to tell it from real honey. In the second we are told that no amount of refining removes the taste of sulphuric acid. So far as resembling honey is concerned, unless genuine honey is mixed with it there is no similarity. The only thing the honey-men have to be troubled about is that a good many may use this corn syrup instead of honey because it is so much cheaper; but I have not seen any yet that can be compared with good honey; and if it transpires that it is injurious to the health, teeth, etc., we have not much to fear. The statement that Mr. Rockefeller is offering half a million dollars to any one who will get out the sulphuric-taste is rather significant if true; in fact, it is a big advertisement for real honey.

Finally, I can not discover that Mr. Rockefeller, or whoever the vendor of the stuff is, has ever called it honey at all. If our pure-food laws are enforced so that the label on the bottle tells exactly how much corn syrup is contained in the article offered for sale we have not much to fear. The people who buy cheap candies and syrups, however, have a good deal to fear until somebody claims that half-million of dollars.

Many of our friends have become alarmed for fear this product would affect seriously the retail honey business. It may do so to some slight extent at first; but we have very little to fear from it. The taste of the stuff for the first time may not be unpleasant; but a regular diet of it would soon disgust the consumer, for sulphuric acid is not a palatable food. Honey has long been known to be the best and purest sweet, and no flash-in-the-pan advertising is going to destroy its reputation that has *been building up for centuries*. Corn syrup is known as *glucose* pure and simple. It would take more money in advertising than Rockefeller has, to make consumers generally believe that glucose is "better than honey" if it is "cheaper." The fact is, the brassy sulphuric-acid taste in glucose can't be eliminated without making it too expensive.

GENERAL
CORRESPONDENCE.

THE BEE-KEEPER VS. THE ALFALFA-GROWER OF NEVADA.

Why the Bee Does Not Lessen the Quantity and Quality of the Hay.

BY D. T. MEACHAM.

On p. 917 is an article in reference to serious trouble in Nevada growing out of a spirit of jealousy and selfishness on the part of alfalfa-growers toward bee-keepers whose bees gather honey from the blooms of the alfalfa or lucern clover. Nothing but the grossest ignorance could possibly claim that the bees saving the honey could in any way injure the value or decrease the crop of forage. As there are so few people who know what honey really is, and how it is produced, I have concluded, by your permission, to explain as briefly as space will allow what honey is and how it is formed, and what purpose it serves in nature.

In the first place, it is a waste product in the vegetable kingdom, gathered by only a few species of insects, the most important of which is the honey-bee, as well as the most abundant. Honey may be closely imitated, but can never be made as perfect by man as it is when gathered by the bees from the flowers and leaves. Our great and good Father appears to have created bees for this specfic purpose. The honey partakes of the flavor of the oil that may be extracted from the seed of the plant or tree producing the flowers. Plants that yield no seed never yield any surplus sugar, or honey, in their flowers. But I am drifting away from the object I have in view, and I must return to the theme above announced.

"How is honey produced?" is the first question we propose to answer; that done, and no sane person can claim that bees gathering it from the flowers of plants or the leaves of forest-trees either injure the plant or reduce its weight when matured. In explaining the process as worked out in nature we must invade the field of science, and learn from the chemist and vegetable physiology what they have seen of the subject in the great laboratory of nature.

Plants and forest-trees, as well as all fruit-trees, are compound objects, consisting of roots, bark, and leaves, all of which have their particular functions to perform. In this article we shall confine ourself to the leaves and flowers. We have all seen that leaves hang on to the trees and plants long after they are fully grown. Why is this? What are they doing? The function of the leaves is to gather or assimilate carbon from the surrounding air, in the form of carbonic-acid gas, which, under the influence of sunlight, is transformed into starch. This starch is stored in the body of forest and fruit trees for the purpose of supporting the next season's growth of wood and seed. At the proper season, and under the influence of proper temperature, another substance, known to the chemist as diastase, makes its appearence in these starch grains, and a new transformation takes place, whereby the starch is changed into sugar, then into gum, then into wood.

We said that honey is a waste product from nature's great laboratory, gathered and saved by the honey-bees. This starch, after being changed into sugar, is used by the plant to feed and support new growth and the seed; and whenever and wherever there remains an excess after supplying the newly formed leaves and seed-stem, etc., it is discharged in the form of a syrup on the leaves of certain trees, and on the petals of certain flowers, from where the bees gather it and store it in the combs of their hives.

All seeds are composed of starch, principally, hence the large amount of this grape-sugar syrup which we call honey. But what becomes of this waste after the new seed has been formed, and gone to work performing the same function as the leaves until it reaches maturity? The seed will not receive it, the leaves will not take it, for they are taking it in its first form (carbonic-acid gas). Then what is to become of this vast amount of nectar? In the humid regions it is washed away by the dews and rains; in the arid or irrigated sections it falls off the plants with the dry mature flowers, and is gone unless it is saved by the bees. The honey-dew on leaves, and the honey on the petals of the flowers, are governed by the same law; that is, the exudation of the excess that remains after this infant seed, leaf, or stem has been supplied with the quantity required to start it to work for itself.

We said above that plants or trees that produce no seed ever discharge any of the syrup which we call honey, such as the rose, snowball, and many others. The sugar derived from the starch stored in the body of such plants is transformed into a gum substance; thence into wood or woody fiber, and added to the plant, forming what we call growth. No method yet applied by scientific experimenters has ever resulted in forcing a plant to imbibe sugar when it has once yielded it. The sugar maple, although yielding a sap heavily charged with sugar, could by no appliances in the hands of the experimenter be made to receive again the sugar. It will imbibe the water when applied to the roots, but rejects the saccharine matter.

In the light of all these known facts, how can the bees, by saving the honey from the spent blooms of plants, injure or decrease their value, when it is known that the spent blooms must fall to the ground with all the honey they may contain, to decay and disappear from man's control? Ignorance of the value of the honey-bee on the part of many people causes this valuable little servant of mankind to be more persecuted and slandered than any other gift of our Creator.

Some years ago an article went the rounds of an ignorant press, copied from one paper to another from Maine to California, and from Canada to the Rio Grande, accusing the bees of puncturing and robbing the grape of its sweets. But when the truth was learned, the facts proved that the grapes had cracked the skin open, so that the sweets were going to waste, and the bees were doing all they could to save it for man. But the slander had to run its course.

If it were not for this little busy servant we should have to dispense with many of our fruit-orchards, and make out to get along with less than one-fourth part of our alfalfa and other clover seeds. We might just as well say that the bees by gathering the pollen from flowers injure the plants as to contend that their saving the honey injures them. We hope that those who may read this article may see more clearly what honey is, and how it makes its appearance on the petals of flowers and on the leaves of forest trees.

Raleigh, N. C.

CUTTING UP CANDIED HONEY FROM SQUARE CANS.

BY E. R. ROOT.

On page 224 of our issue for March 1, and 276, March 15, I described a method of cutting up a solid chunk of candied honey just as it is taken from the can after the sides, top, and bottom had been cut away. I promised to give a little later some halftones showing the *modus operandi*. These I now present, showing each step of the operation.

Fig. 1 shows a cake of candied honey after the tin can has been stripped off. This is accomplished by taking a pair of tinner's snips, cutting off the top and bottom, slitting down one corner, and rolling the tin back, leaving the cake in one solid mass. This is slipped on to a board. An ordinary No. 16 steel wire, tough and strong, is cut into a length of about a yard. To each end is twisted on a wooden handle. The wire is slid under the cake, back far enough to cut off a slab of the size desired — we will say in this case 3 inches. The two ends are drawn up on lines parallel to the end of the cake and crossed in such a way as to bring the wire clear around and the honey in the loop formed. The two wooden handles are then drawn from each other, causing the wire to sink gradually in all four corners — see Fig. 2. Continual drawing will gradually pull the wire through the whole mass until it is nearly out — see Fig. 3. The wire is then drawn clear out, but the slab will stick to the main mass from which it was cut. A thin-bladed knife enters the seam where the wire passed through, slabbing the piece off, the same as is shown in Fig. 4. We now have a chunk of honey 3 inches thick, and of the size of an ordinary 60-lb. square can. It then can be cut up into smaller chunks, or "bricks," as we prefer to call them, as shown in Fig. 5. When this picture was taken, our Mr. Warren had not gotten his hand in as he has done later; but the bricks will weigh approximately 2 lbs., and can be sold by

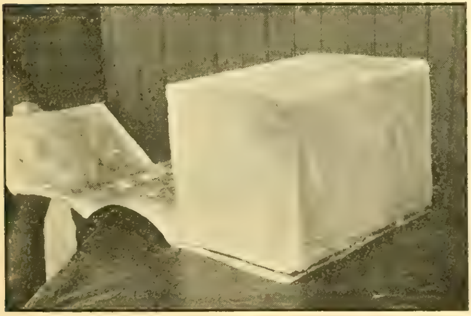


FIG. 1.—CAKE OF CANDIED HONEY SHOWING HOW THE 60 LB. CAN IS STRIPPED OFF.

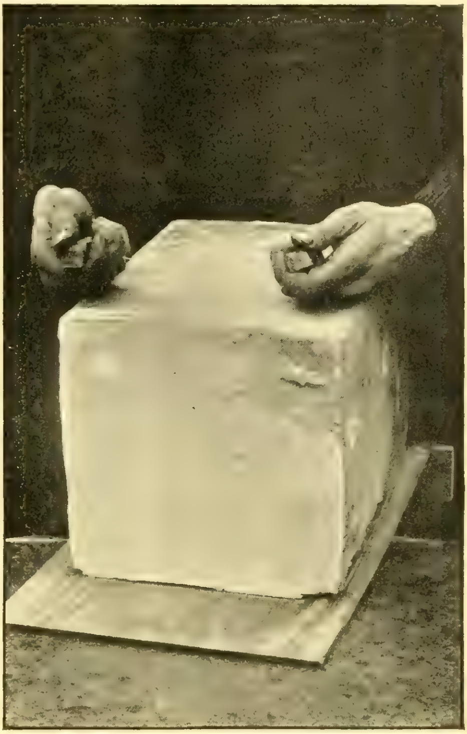


FIG. 2.—BEGINNING TO CUT OFF A SLAB OF HONEY WITH THE WIRE.

the piece when wrapped in nice clean transparent paraffine paper. When put up properly they look like dainty toilet soap, and sell — they will move off among your local customers without half trying.

If one wishes to cut honey up into bricks he must be careful to select a can in which the honey is not mushy nor soft, but hard and unyielding. This he can easily determine by unscrewing the cap. In our early experiments we made the mistake once of peeling the tin off from a cake of honey that was semi-soft. Fig. 6 shows what kind of a mess we got into. The wire went through it, of course; but the honey, by its own weight, squashed down and ran all over every thing. The honey should be firm enough to stand up during the operation of cutting, else you will be disgusted with the whole business.

As I have previously explained, where an electric current can be procured to heat the wire the cutting can be performed much more easily, and the slabs or bricks will be as smooth and perfect geometrically as one can desire.

It is not too late in the season to try the experiment with cans of solid candied hon-

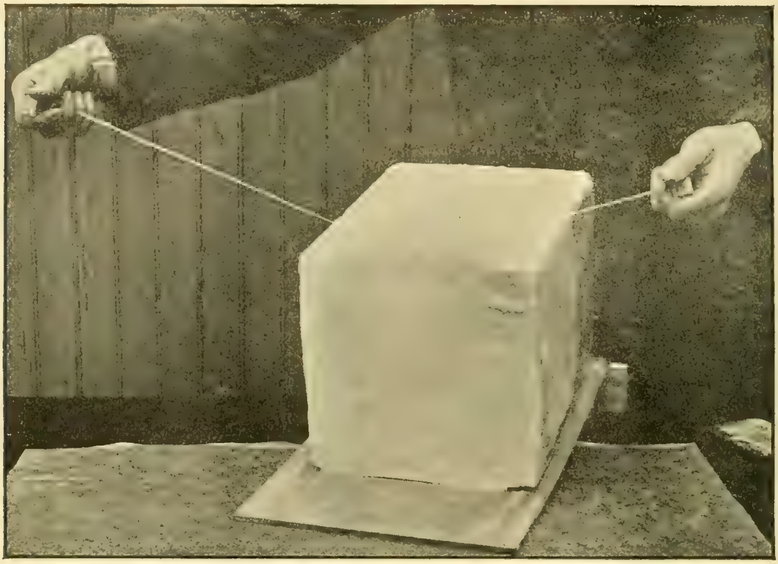


FIG. 3.—SLAB OF HONEY NEARLY CUT THROUGH BY THE WIRE.

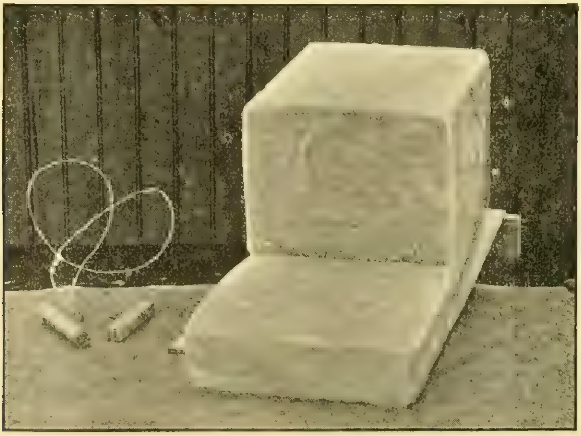


FIG. 4.—SLAB OF HONEY CUT OFF.

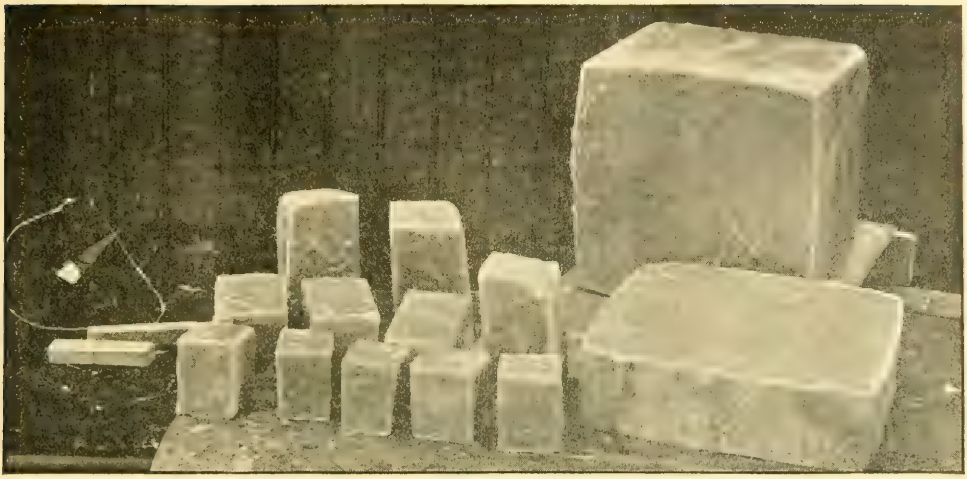


FIG. 5.—SOLID CAKES OF CANDIED HONEY CUT UP INTO TWO-POUND BRICKS WITH A WIRE.

ey. In the old way, such honey in a square can requires an immense amount of work to get it into shape to sell to the local trade. The cans must be set in boilers of water not hotter than 150 to 160 degrees, and kept there for hours at a time. The amount of fuel required to melt these solid chunks is quite an item; and it is not easy to pour the honey out of these cans after it has once melted. There will always be a draining that is practically a loss.

Perhaps it may be objected that it is too bad to cut up a good square can, and spoil it, in order to carry out this method of retailing in bricks. When it is remembered that a second-hand can brings only a few cents, one can well afford to spoil one if he considers time, labor, and fuel any item—especially so if he can double on his money. This he can easily do if he makes the bricks small enough.

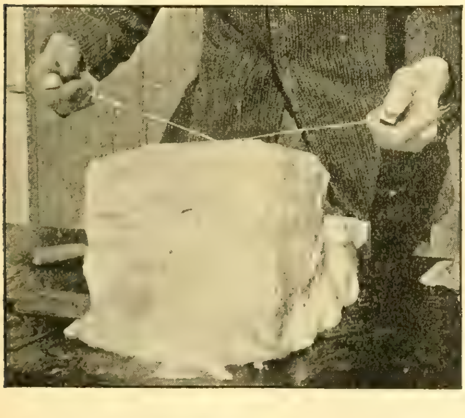


FIG. 6.—CANDIED HONEY TOO SOFT TO CUT UP INTO BRICKS.

STANDARD SIZE OF COLONIES.

Shall we Unite in the Spring? Some Seasonable Teachings on Preparing Colonies for the Harvest.

BY G. M. DOOLITTLE.

The following questions have been sent to me, from which it is desired that I make an article for GLEANINGS:

"How many bees should each queen have in the spring to be in the best condition for the honey-flow from white clover? Would it be profitable to bring all to some standard of strength in spring by uniting?"

I will commence by answering the last question first. I have never found the uniting of bees in early spring as profitable; and from past experience it would be an impossibility to obtain a "standard of strength" in that way. There is something about this uniting of bees in early spring that I never could fully comprehend. It would certainly seem that, where two or three weak colonies were found in April or early May, if the same were put together so as to form a single colony with the maximum number of bees for a good strong colony at that season of the year, a colony so formed would keep right along, the same as does a colony of the same strength in bees that needed no help; but such is not the case. I have tried it scores of times, as have many others of our best bee-keepers, only to find that at the end of a month such colony of united bees would be no better than would *one* of the weak colonies that had been left entirely to itself. For this reason I have, of late years, not tried to build up colonies which came out weak in the spring by uniting the *bees* by any of the known plans, but treat them as will be given further along.

We are now ready for the main question, "How many bees should each queen have in the spring to be in the best condition for the honey-flow from clover?"

That will depend something upon the queen. If the queen is a good one, one that is capable of laying 3000 eggs every day for three weeks in succession, such a queen does not need as many bees as does the queen that is not so good, or the one that will not lay more than from 1500 to 2000 eggs daily during the time specified. And the latter-named queens will not give as good results in honey as the former, no matter how many bees they may have in early spring. With a queen of the first class, I much prefer the colony which has a five-range cluster on a cold morning in early April to one which has a greater number of bees. And what do I mean by a "five-range" cluster? I mean any colony which shows bees between six combs, or in the five spaces which are made by the six combs, the bees in the center space nearly touching the sides of the hive, and coming nearly down to the bottom-bar to the frames, on a cold morning in early April, the same being found in this way on tipping up the hive from the bottom-board, and before the colony "breaks cluster" from the disturbance of the tipping. The clusters in the spaces on either side of this center space will not be as large as the center one, and the two still further out are still smaller than those nearest the center. If I have made this plain (and I think I have) I will say that, in Central New York, that size of cluster will give better results than will a cluster either larger or smaller, according to an experience of over 30 years; and if I could have each colony in the whole apiary in that shape, I would ask for nothing better Such a colony I consider A No. 1 in every respect, if it has a good queen and a reasonable amount of stores. I used to think that, where I had a colony at this time of the year (first of April), that had bees in from eight to ten spaces, as I sometimes would have with large colonies when set out of the cellar, I had something that would show a great record in honey; but such large colonies have never produced the honey that colonies of the five-range clusters have done from clover and basswood. I have had these large colonies fill their hive with brood in about four weeks from the time of setting from the cellar, and it seemed that they would do great things when the honey harvest arrived; but soon the queen would cease her prolificness to a great extent, or just at the time she should be laying the most profusely in order to bring the largest amount of bees on the stage of action at just the right time for these bees to take advantage of the clover-honey harvest. If it was honey from the fruit-bloom that gave us our main crop, then these large colonies in April would be just the thing; but a surplus from this source, to amount to any thing as a marketable product, is something which does not materialize once in a dozen years. With the five-space cluster the bees arrive at the maximum amount of brood-rearing in just the right time for the bees from that brood to become laborers in the harvest from clover, and that is the reason that a cluster of this size is the best.

But what about those which have a smaller amount of bees than a five cluster? These are not united, as I have already explained; but as soon as any of the large colonies have frames of brood from which the young bees are just beginning to emerge, such a comb of this emerging brood is taken and carried to one of the colonies which was only a four-space cluster, and an empty comb or comb of honey (according as they have stores) is given to the strong colony. This helps both colonies by bringing each up or down, as the case may be, to the place which the five-space colony now occupies. In a week or so, another frame of emerging brood is taken from the strong colony and given in the same way to the colony which was still weaker in early spring, or the three-space cluster; and in still another week, another frame is taken from the strong one and given to this same three-space colony In this way the strong colony is brought, as nearly as may be, to the condition of the five-space colony at the time of the clover harvest, and the three and four space colony comes up so that they nearly equal the ideal one, which had five spaces occupied with bees in early April.

In my earlier bee-keeping I used to bring the two-space cluster up in early June by giving it a comb of emerging brood from two or three of the now complete colonies; but since I learned more of the "shook-swarm" plan I consider these very weak colonies of nearly as much value as one that was fairly good in the spring, using them to care for the brood from which the swarms are shaken, as I gave in the "Conversation" found in the February 1st issue of Gleanings for this year. This bringing of a colony up to its maximum strength in bees in just the right time for the honey harvest may be a hobby of mine; but I found, by careful watching for years, watching to find out why it was that certain colonies in the apiary did so much better at honey-storing than did others, or, in other words, what it was that made certain colonies "lucky colonies," as it was termed, that it was just this thing of having the maximum amount of bees on the field of action, just when the harvest was at its best, that gave these "lucky" yields; and as twenty years' experience along this line has given the same "lucky yields" every time, I am still riding the same old hobby; and allow me to say that it is just the *best* hobby any bee-keeper can ride who is depending upon the honey yield from his apiary for his success. If I am correct, Mr. A. I. Root and Dr. Miller do not discountenance the riding of hobbies, and claim that the man who never has any hobby is not much of a success in the world.

Right here I wish to correct a wrong impression which has gone out, as it would appear from the writings of S. E. Miller, who advocates the "keeping of colonies always strong," and reasons, somewhat, to the effect that Doolittle was advocating weak colonies at all times of the year, only just at the honey flow or flows. This is not what I advocate in the expression "colonies having the maximum strength of bees when the honey harvests are on, and as weak at all other times as is consistent with this object." That five space cluster spoken of in this article is as weak as I would ever have any colony, if I could have my way, and is as weak as is "*consistent*" with securing the maximum amount of bees in time for the harvest, as I have already shown. All York State bee-keepers know that any colony which has a five-space cluster on the first day of April, as I have described, is a good colony of bees to all intents and purposes. In fact, I never do any thing to discourage any colony in the least, only as I have given in the above in making the extra strong help the weak; but I *do use my utmost endeavor* to find out just when the main honey-flows may be expected in my locality, and then work with all the *vim* that A. I. Root does with his automobile, to bring all colonies up to the greatest possible strength in *field-bees* just when those flows are at their best.

In this article I have given (in part) some of the means used to effect the object I desire to accomplish. I ask no one to use my methods unless he can see it to his advantage to do so. I simply say that, if I have attained any success in the pursuit of apiculture, it has been obtained by the use of the means I have given from time to time in the columns of GLEANINGS.

Borodino, N. Y.

LANGSTROTH INVENTION OF THE BEE-SPACE.

The Might of Right, and How Truth Must Prevail; an Interesting Historical Sketch.

BY C. P. DADANT.

Mr. Editor:—I have just read with great interest the inquiry of H. J. O. Walker, of Leeford, Eng., and your reply to him concerning the invention of the movable-frame hive. As you mention my father, Chas. Dadant, going over this subject about 1886 or '7, I wish to say a few words, for the discussions took place mainly in 1870—'72, when I was already old enough to take an interest in it. It was in the *American Bee Journal* for March, 1872, that my father took the initiative of the vindication of Langstroth and his invention. In an article entitled "Honor to whom honor is due," he stated what knowledge he had of the inventions of European bee-keepers in the matter of movable frames. He had tried the Debeauvoys hive and similar hives in France before coming to America, and could say knowingly that the Langstroth hive was the only practical hive, since it was the only hive which had, as you very correctly describe it, "a bee-space around the frame—top, sides, and bottom, and a bee-space between the frames, the same supported by a projection or a continuation of the top bar." In this article he quotes Hamet to show that the Debeauvoys hive had so little practicability about it that the 2500 proselytes which this hive had gained in France very soon abandoned it and returned to the old straw hive. The hive worked well when new; but as soon as the frames had been propolized it was no longer a movable-frame hive. He quotes Bastian and Mona to show that the Berlepsch hive, which came the nearest to the Langstroth invention, but did not have the movable ceiling, was also a failure.

At the close of this article he says: "I do not know whether these facts can have any influence on the lawsuit now pending, but I owed to Mr. Langstroth, I owed to truth, I owed to the history of bee culture, the publication of the above facts."

This was the first successful step in the vindication of Mr. Langstroth. The Blake hive, described by Buzairies, was most probably an invention which had not found its way in print in America, and was used by only a few. It can not be called a movable-frame hive, since there is no statement of the width of the drawers that are placed perpendicularly in the upper part. The brood-apartment was very evidently without frames, the small slats at the top being intended for the passage of the bees. It is quite plain that these upper drawers were intended for the purpose of securing the honey in sections of two or more combs at one time. There is a possibility of others having invented the movable-frame hive at the same time Langstroth did. A. F. Moon claimed that honor, in his "Autobiography and Personal Recollections;" but history must record only that which is evident and beyond dispute. That the time had come for improvements in hives is shown by your statement of the number of patents that were taken after 1831 on this matter. But had not Langstroth made and published his invention, America might have lingered in the rear instead of coming to the front of nations in practical bee culture. There is little doubt that, in France, the Debeauvoys hive with its deceiving features of improvement, was mainly to blame for the reaction against progressive hives that has lasted in that country almost to our day.

You will remember the bitter war that was waged against the senior Dadant by the second oldest bee-journal in the world, *L'Apiculteur*, of Paris, just because he insisted on the practicability and usefulness of the Langstroth principle in hives. From 1869 till 1873 it was a war of harsh words which finally cooled down to a surly obstinacy on the part of Hamet; but the progress has slowly advanced by the repeated efforts of a number of men, and the Langstroth invention is recognized there as well as here. A young generation has dropped the fight; and a month ago the later and more progressive editor of *L'Apiculteur* decided to open his columns freely to the new ideas, and asked for apicultural contributions of the son of the man who had once been reviled by this same paper for his views.

Hamilton, Ill., Feb. 24.

[Yes, indeed, your most respected father was persecuted for telling the truth; and it is pleasant to know that time has fully vindicated him, in the very journal that opposed him so strenuously. It seems, though, as if nearly all good things must be opposed at the beginning. A recent example is the plain section and fence, both of which are coming more and more into use. The Italian bee was opposed on its first introduction, and at one time your father and Langstroth were almost their only defenders. There are numerous other examples that might be given it it were necessary.—ED.]

CHEAP HOME-MADE WINTER-CASES.

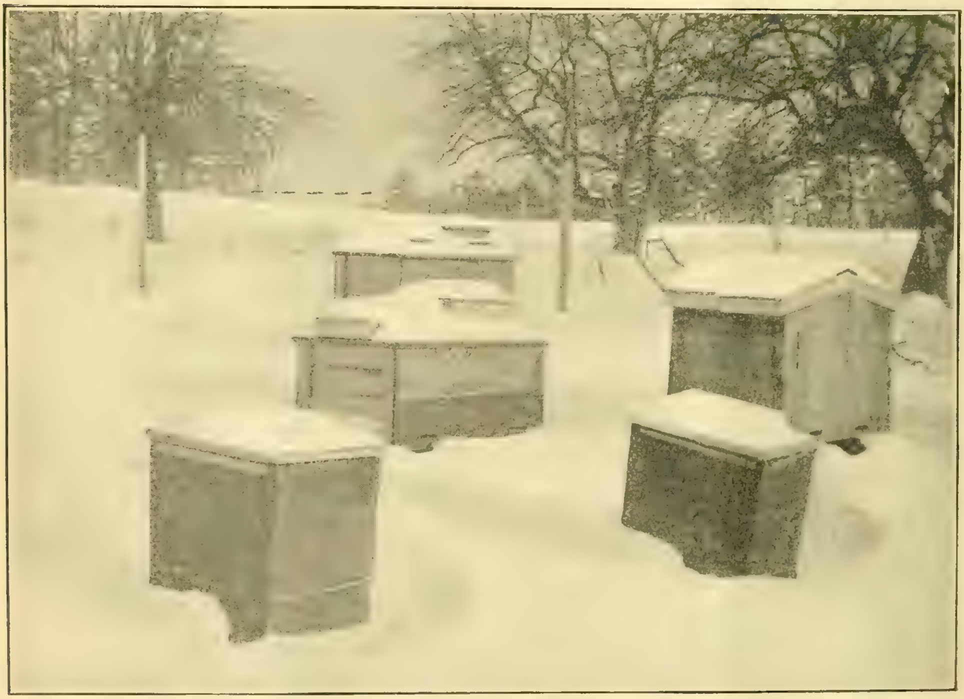
BY F. GREINER.

One of the problems at the present time before us bee-keepers who are in the business for the money that is in it, and for obtaining the means to clothe and feed our families, is, how to get our hives and other fixtures as cheaply as possible. As far as the sections are concerned, of course we are at the mercy of the manufacturing concerns and lumber-dealers; but when it comes to winter-cases for the protection of our bees, we can often pick up boxes at the drygoods stores very reasonably, which will answer well for packing single-walled hives. The two boxes in the center of the large photo were originally one, and cost me 40 cents. It was cut into in such a manner as to give sufficient room for placing, in the back one, four hives (two side and side, and two high), in the front one, only two hives side and side. Two covers had to be made and covered with roofing-paper. To hold them from blowing off I have just piled the hive covers on, which, with the snow and all, has proved sufficient.

At the extreme right of the picture is shown another manner of using up odds and ends of lumber for winter-cases. I had a number of large boxes lying around, in which fruit-trees had been shipped. These were worked up at leisure hours. Originally the box shown was intended for four colonies, but is used now for only two. I should have made it a little higher, and put in the hives two high. This would have been cheaper and just as effective. As will be seen, I have made use of the four regular telescope hive-covers as the roof for the box, just adding a ridge-board.

The two hives in the foreground are protected only with tarred paper and a heavy packing over the frames.

The hives shown in the picture are located in one of my outyards.



A PART OF GREINER'S OUTDOOR-PACKED BEES.

I have been wondering for some time if it were not possible or practicable to use straw in the building of our hives, and thus save in part the expensive lumber. Perhaps straw in combination with paper might do.

GREINER'S HOME-MADE WINTER-CASE.

Straw can be raised quickly on demand, and it would seem that the American genius could contrive a practical method of utilizing this material. It is most excellent material for hives, and, as is well known, has been used for centuries in this construction by European bee-keepers. It seems to me that it is well worth the while to devote some study to this subject.

I have no doubt that hive bodies, covers, floor-boards, etc., could be made from pulp —all in one piece, without a seam; but they might be more expensive than even pine lumber. Who can tell us about it?

Naples, N. Y.

[So far straw board is very much more expensive than pine lumber. The time may come, however, when we can use some material made of straw. This article was written during the early part of winter. It will be interesting to know how the bees come out.—Ed.]

A CHEAP, SERVICEABLE, HOME-MADE UNCAPPING-CAN.

Moving Bees in Box Hives; Home-made Hive-covers.

BY E. F. ATWATER.

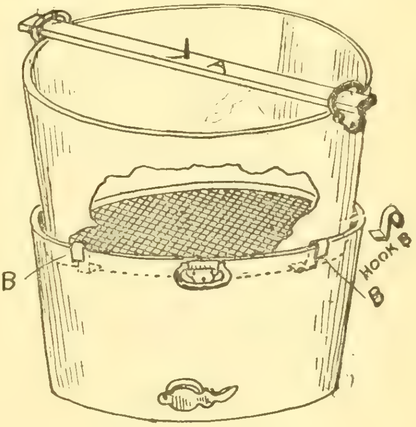
Take a large-sized galvanized-iron tub; cut out the bottom to within an inch of the circumference, and solder in its place a large circular piece of heavy galvanized-wire screen. This makes the upper part of the capping-can. Now take another tub, slightly smaller, for the lower part, to receive the honey which drains from the cappings. Make four hooks of iron $\frac{1}{8} \times 1 \times 4$ inches, bent in the shape shown in the cut at B. Hang these on the rim of the lower tub so that they will support the upper one. Now get out a piece of clear pine, 1×2 inches, and about 3 inches longer than the width of the top of the upper tub. Drive a large long screw through the center of this piece, and file the point until it is sharp. Raise the handles of the tub, and slip the strips under them. If desired, a honey-gate may be soldered in the lower tub. Such a capping-can is cheap and efficient, especially in moderate-sized apiaries.

HOW TO MOVE BEES WITH OPEN ENTRANCES.

I move bees over rather rough roads, in spring or fall, without springs or hay, and with no loss. I have just finished moving an outyard of 115 colonies a distance of seven miles. Some of the colonies were in old box hives recently purchased; and as it was almost impossible to fasten the bees in, owing to cracks and crevices, we threw a large wagon-sheet over the load and tied it down at the corners. By occasionally pouring a good volume of smoke under the wagon-sheet, which retains more or less of it for some time, the bees are subdued and kept so. This has proved a very useful "kink" to me when moving old hives.

HIVE-COVERS.

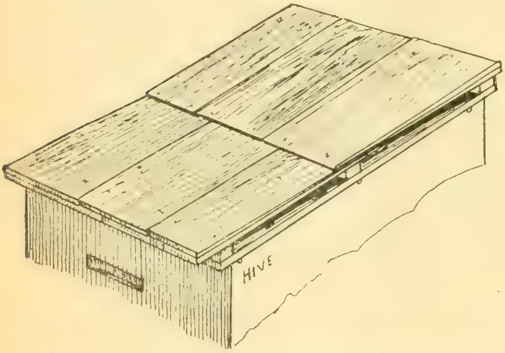
About a year ago I described the McClellan hive-cover, which you illustrated in Gleanings; using the same principle, I am now making double covers which are light, cheap, and durable. Get out $\frac{3}{8}$ or $\frac{1}{2}$ inch stuff, in one or more pieces, to be as wide as the hive, and an inch or more longer. Nail cleats about $\frac{1}{2} \times 2$ across at each end, and one in the middle. On these cleats nail the best cedar shingles, as shown in cut. If you wish a dead-air space, cleats must also be nailed in the openings at the sides of the cover. Give the shingles two or three coats of good white paint, and your lids will last for years. The material



TUB CAPPING-CAN AND PARTS.

for three lids costs me about 5 cts. each, without paint. To prevent the cover from sliding off the hive, drive two crate-staples near each end on the lower side, or nail small cleats across.

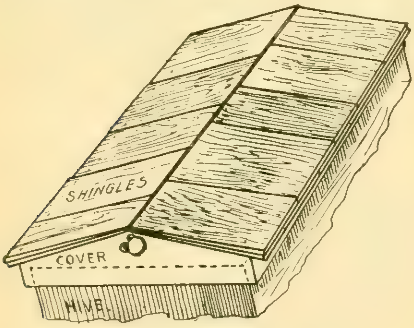
A splendid cover in some respects is the one used by G. J. Yoder & Son, of Meridian, Idaho. The rim of ⅞-inch lumber is rabbeted so as to telescope about ½ inch over the hive. The gable roof is of shingles, well painted. There is an opening in each end, for ventilation, which may be closed by a button.



THE M'CLELLAN DOUBLE COVER.

Boise, Idaho.

[Your uncapping-can is a very good one. The only trouble is, the upper compartment ought to be three or four times as large as the lower one—that is to say, the upper tub will become filled with cappings long before there is two inches of honey in the lower one; but in a small extracting business this would not be a very serious objection.



THE YODER COVER.

The plan of moving bees without closing the entrance, or moving them as you describe, where it is not practicable to close up the hives, is perfectly feasible. After the bees have been severely jolted for a few minutes they will not be likely to offer an attack; but the difficulty is to get them jolted to quietness in the first place. A vigorous smoking in the entrances, then a brisk drive, will put the bees in a quiet condition where they will stay so. It is a well-known fact that in bee-hunting the first blow of the ax on the outside of the log brings the bees out in battle array. If they are smoked back, and then a continuous chopping be applied on the log, they will quiet down without the further use of smoke. The log can be chopped open, combs be torn out, and no stings will be received except where the bees are accidentally pinched.

I believe your covers to be all right.—ED.]

Heads of Grain
from different fields

COVERS VENTILATED OR DEAD-AIR SPACED; INVERTIBLE HIVES; IS THE GENERAL PRINCIPLE PRACTICAL?

My attention is attracted by Dr. Miller's remarks in Stray Straws concerning covers. He says, page 12, "Besides, we want a cover with a dead-air space, so as to be cooler in summer and warmer in winter." I think the doctor is right so far as an air-space is concerned; but if he will make a test of two, one having a dead-air and the other a free-air or ventilated space, he will find that, while the latter will keep the under part cool by the air carrying off the heat from the material over it, the one with air confined holds the heat, which is conducted to the lower part, and thus reaches the interior of the hive. This knowledge has been valuable to me while in Florida, where I spent about five years, and designed and built about one hundred houses, as well as keeping a good many bees, the latter having been my hobby since boyhood—to be more definite, about 25 years. My own experience has thoroughly proved the correctness of the above statements concerning hive-covers. I want to add I fully agree with Dr. M. that a hive-cover is the last part on which to economize.

On page 31 Mr. J. V. Woodworth asks why Mr. Danzenbaker has not turned his brood chamber bottom-up instead of taking out the frames and inverting them; to which you reply that it is not practical with the Danzenbaker hive. I would ask, is it practical with any hive? To me the question appears an important one to bee-keepers, believing, as I do, that many difficulties may be overcome and advantages gained in using a practical working invertible hive. Let me suggest one point. At the beginning of the honey-season, before swarms appear, suppose we invert the entire brood-chamber and put on the super without even opening the hive to look for queen-cells. The brood will then occupy the top edges of the combs; the honey is turned to the bottom of the hive, and right at the entrance all queen-cells, if any, are upside down. Now, under those conditions what may we anticipate? Having carried the nurse-bee cluster to a position immediately under and very close to the super, is it not quite likely to cause the bees to cluster there, and find the only desirable place for honey being brought in? and is it not equally probable that the honey from below, exposed near the entrance, will be the immediate demand for space above the brood? and what is the effect on the bees in the event of preparations for swarming, after being thus generally upset?

In the event of interference with their plans, and when work is resumed, will not the result be that the brood-chamber is enlarged at the lower edges of the combs, the super occupied, and the conditions so changed as to retard if not to destroy the desire to swarm? I hope others may have some practical suggestions along this line.

Alton Park, Tenn. E. E. Starkey.

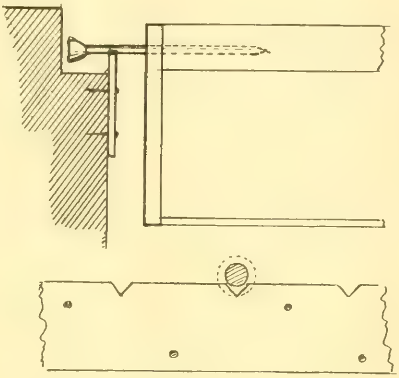
[From 1883 to 1887 the bee-journals were full of articles relative to invertible hives and reversible frames; but after money and time had been expended in getting up devices, and good money had been wasted in patents, it was discovered that very little would be accomplished by turning things upside down, so we hear but little of it nowadays. But individual frames can be reversed, often, to advantage; but beyond the mere building-out of the combs to the bottom-bar, little else is accomplished. Once reversing of a frame is usually sufficient. As our correspondent says, inverting has a strong tendency to disarrange the general plans of the hive; and I doubt if any of those who practice inverting the whole hive have made a copper's more profit per hive than they did before. J. M. Shuck, in the early 80's, got out as good an invertible hive as was ever made. He even went so far as to invent an inverting-jack to invert the whole hive. It performed the operation in a twinkling; but we hear nothing of the hive or the jack nowadays.—Ed.]

NAIL-SUPPORTED FRAMES; EUROPEAN SILK.

The editor, in Dec. 15th issue, p. 1044, asks for information about frames hung on wire nails. That mode of suspension has been in use in Europe for some 50 years or more, and is known in French-speaking countries as "cadres impropolisables," which means unpropolizable frames. I prefer it to any other. I use 6-penny common or 8-penny finishing nails. The 6-penny finishing are too light. In making the frames, nail the top and bottom bars between the end-bars without any notch, something as shown in the cut.

The figure also shows how the nails rest on the tin rabbets or strips. The tin strips are notched where the nails rest, as shown.

The notches must be very light — just enough to hold the frames in place, and yet permit the apiarist to push them apart if he wishes to do so, thus securing the advantages of both fixed and loose frames. When the idea occurred to me to cut these notches I thought myself quite an inventor; but I soon discovered that others had preceded me.



GETAZ'S NAIL-SUPPORTED FRAME AND NOTCHED METAL RABBET.

Heavier nails could be used if needed, 8-penny common, for instance. The danger of splitting the wood can be avoided by clamping the frame in a vise and driving the nail while it is clamped.

RAW MATERIAL FOR THE UNITED STATES SILK-FACTORIES.

Mr. A. I. Root asks, further on, where the silk used in the United States factories comes from. It comes from Southern Europe nearly altogether. The wages there for farmwork is only one-third or one-fourth what it is here; and even that is not to be counted. The bulk of the silk produced is raised by peasants and small land-owners. The work is done chiefly by the women and children, and what they get is counted as clear gain. We can not compete with them. It has been tried several times, and I think there is yet very little silk raised here, in the Carolinas, and one or two other States.

The raw silk, that is, merely reeled from the cocoons, enters the United States free, or perhaps pays only very light duties. On the other hand, very high duties, practically prohibitive, are placed on the manufactured goods. The result is that the silk is imported raw and manufactured here.

Knoxville, Tenn. Adrian Getaz.

[A nail-supported frame, nails resting in notches, was illustrated some ten or twelve years ago in these columns. The objection to spacing-devices in the hive or rabbet (and a serious objection too, in my mind) is that it does not allow shoving the frames over *en masse* for the purpose of making more room. The shallow notches in your rabbets minimize this objection to some extent.

Another objection to such an arrangement is that it does not permit one to remove the bees to outyards without fastening the frames. Frames hanging on these nails in notches would swing like pendulums with the slightest movement of the wagon. Nail supports are all right; but the spacing-device should be on the frame.—Ed.]

CAN BROOD BE REARED DURING WINTER?

Has any one ever succeeded in raising brood in the winter season by feeding bees carefully and making the conditions right as to temperature? Could a scheme like the following be used? Put the hive in a warm atmosphere, say 70°, and have it rest upon a wire box, say 3 feet high, just the dimensions of the hive, with the bottom so arranged that it could be left out, giving the bees a chance to fly about in the wire cage below, and yet at night gather in the usual cluster. L. H. Clarke.

Gardiner, Me.

[Brood *can* be reared in winter, but it is not practicable. You can warm up the hive to 70 degrees; but unless the bees can have a fly in the air outdoors, when it is warm enough for them to do so, and return, they will become uneasy and die off. Some thirty years ago, just within the limits of my memory, my father conducted some elaborate experiments on rearing brood in midwinter. Several hives were shut in a greenhouse, and the glass was screened with mosquito netting. He actually succeeded in rearing brood, and the bees flew out, and in time learned to return; but so many of them were lost trying to get out, that the experiment was deemed a failure. Your wire-cloth box you speak of would be even worse than the greenhouse.—Ed.]

WHEN TO TRANSFER.

I have ten stands of bees in old hives, L. frames, different sizes. I have bought new hives, and wish to know when you would transfer — in spring early, or wait and put new swarms in? In the old hives I can not take out frames to examine when queenless or not. Mrs. C. C. D.

Bluffton, Ind.

[I would advise you to follow the Heddon short method, and do the work just as settled warm weather comes on. This method is described in the A B C of Bee Culture, and briefly it is nothing more nor less than shaking or drumming most of the bees out of the old hive and compelling them to go on sheets of foundation in a new hive.. Three weeks more, after the brood is hatched out, the old hive is given another shake, or drive, putting the remainder and the newly hatched bees with the first. The old combs are melted up.—Ed.]

ROOFS FOR HIVE-COVERS; A FEW POINTERS FROM A CONTRACTOR.

Your article, page 174, pertaining to roofings for hive-covers, and your claim that metal covers of that description are short in service, is true unless you take the best quality of tin and keep it well painted. That I would consider the best of the metal roofings. Slate or iron roofing is not nearly as good in my estimation. In my practice as contractor and builder I come in contact with almost all kinds of roofing; and of all, outside of shingle, I can recommend only two kinds—that is, for flat-roof purposes. One is the best tin well painted, and the other the Manville asbestos roofing. This roofing, however, is more expensive than other ordinary felt or tar roofing, but still cheaper than tin or good shingle. This roofing will not tear or break, being interlined with layers of burlap, making it thereby very strong and durable. The upper face side is composed of a sheet of pure white asbestos, and guarantee is given that it will stand all kinds of weather for five years without any coating except the cement put between laps.

Speaking of hive-covers, I think this kind of roofing would do excellent service, as it would last a good while without any coating; and after coating, it would be all right for some more years. The price I pay for this material is $3.75 per 100 sq. ft. here at the store; but each roll contains 200 sq. ft., making a roll very heavy. The nails used for this roofing are purposely made for it, and are furnished with the roll, being flat-headed, no tins required. Wm. F. Daniel.

Sandusky, O., Feb. 22.

AN EXPERIENCE WITH CANDIED HONEY.

You ask for experience in candied honey. At one time I had a hurry order for five gallons of candied honey. I melted it and put it in a tub, and set it outdoors in zero weather. It thickened, but would not candy. After exposing it for a week I set it in a room without heat, at a temperature of about 4°. In about two weeks more, with some stirring, it candied. Again, I wanted to candy some in glass cans for exhibition purposes. I placed it in an ice-house,, laying it flat on the ice and covering it with sawdust. It would not candy at all. This was placed on the ice in August, and taken out in October. Chas. Mills.

Camillus, N. Y., Mar. 9, 1904.

[Too cold a temperature is not conducive to candying. It should be a little above freezing, and change from warm to cold.—Ed.]

STINGLESS BEES; ARE THEY WORTH ANY THING FOR HONEY?

Not long ago I saw an item in a paper concerning a new stingless bee. Being busy at the time, I laid the paper aside till I might have more leisure; and when I thought of it some days after I could not find the paper. I did not remember the name or date, but I think it a sample copy of some farm paper. If you know any thing of them, let me know. If not, send me what information you can; for if there is no serious danger of getting stung to death, or the experiment will not call for more expense than I can stand, I would not mind making a trial.

I should like to find something that would bring good returns with time, as I have almost no money, and should like to find something that I could live on that would require no physical labor on my part, as I am not strong. I live in the city, close up to neighbors who are cranky about poultry, etc., so no one in the neighborhood could do any thing with that.

MISS M. F. MICHENER.

Burlington, Ia., Feb. 29.

[From a commercial point of view, the stingless bees are of almost no importance, at least at the present time. There are several varieties, or, perhaps, more properly speaking, species, in the West Indies, in Mexico, Central America, and the South American countries. Some of these bees will store as much as half a gallon of honey in a log; but the great majority of them, if I am correct, work from hand to mouth, just about as the native human beings exist in the same localities.

We once had a colony of stingless bees imported from Mexico. Our climate did not seem to agree with them, and they soon dwindled away.

While the stingless bees, as their name indicates, have no stings, yet they can bite pretty viciously. One variety is said to be able to "bite so tremendously" that the average person unfamiliar with the sting of the regular honey-bee supposes he has actually been stung.

You would not find the difficulty from stings of the regular honey-bees so serious as you imagine. Get some practical beekeeper to show you how to open a hive with a good smoker. Mrs. L. C. Axtell, of Roseville, Ill., has been an invalid for years, yet she manages to do a large amount of work among her bees, and she makes them pay.—ED.]

FEEDING BACK; WHY NECESSARY TO THIN DOWN THE HONEY AS FED; UNCAPPING-KNIVES; SHOULD THEY BE USED HOT OR COLD?

Why is it advised to thin down honey with warm water to about the consistency of raw nectar when one wishes to feed back for the purpose of finishing up sections at the end of the season? We have fed back thousands of pounds of extracted honey, and never yet had to thin it down to obtain the results sought. If you feed back such thin feed you certainly have to feed back a greater bulk, and we find it causes the queen to lay, and there is a large amount of brood raised that is of no use to the colony—at least, such is the result in this southern country. Such thin stuff causes the bees to do more work, and they will not finish the sections as soon as they would if they were given thick honey, and the thicker the better.

The question as to which is better, a warm or a cold knife for uncapping, perhaps if the honey is thin a cold knife will answer very well; but if the honey is thick, then a *hot* knife is the best. We now consider a *warm* knife but little if any better than a cold one. Our practice is to have a suitable pan set on a coal-oil stove, and filled with water kept near the boiling-point. Each uncapper has two knives, one of which is in the water all of the time. We never uncap more than one comb without changing knives, thus keeping the knife always hot. We hardly think a man could stand it to pull a cold knife all day over combs filled with thick honey. Our best day's extracting was 19 barrels of 32 gallons each; and after long experience we have arrived at the conclusion that for us we want no cold knives. We notice one person says, sharpen the honey-knives with a *file*, making a saw edge on the knife. Will not such a knife tear the comb? We know that a very small nick in the edge of a honey-knife always makes us trouble, and we try to have the edge on our knives as keen as a razor; but we find there is not more than one knife out of three that will take such an edge; however, everybody to his notion. We tell only what is most suitable for us under present conditions. We might change our mind if we were in a different locality.

M. W. SHEPHERD.

Marchant, Fla.

[The question-marks put out by our correspondent deserve our careful attention. I should like to see these questions more fully discussed. Since writing the foregoing I have had a talk with Mr. N. E. France, General Manager of the National Beekeepers' Association, and he seemed to agree with every point made by our correspondent.—ED.]

EXTRACTING-FRAMES; WHAT SHOULD BE THEIR DEPTH? PERFORATED ZINC AND WIRES NUISANCES.

On page 25 you are "just shouting" when you say the extremely shallow frames are "too much of a good thing." Two of them are too deep for a comb honey hive (I will say in this locality), and one's on the other extreme, only very much worse, making it necessary to use that other nuisance, the queen-excluder. Really, I don't see what they were gotten up for. The 7½-inch-deep frame is *the* frame to use in a comb-honey hive. It is the only frame I can get filled with brood clear up to the top-bar without danger of the queen going into the sections, and also pollen. No excluding zinc is needed. Full sheets of foundation in these frames make perfect combs without wiring. Go any deeper than this and you *must* wire. Then comes the trouble from getting the wire too tight or too slack, foundation buckling, elongated cells stretched out of shape so the queen lays drone eggs in them. I know this does not always happen, but does very often, as we can see from the complaints that appear in the various bee-papers.

On these hives I use a super of combs 5

inches deep in the early part of the season, and remove them when I put on the sections. Thus you see I have a big hive, 12½ inches deep, when the queen needs lots of room, and a shallow hive (7½ inches) when I wish to crowd them into the supers, and no dummies under outside sections.

W. C. GATHRIGHT.

Las Cruces, New Mex.

FEEDING BEES A POLLEN SUBSTITUTE AND SUGAR SYRUP AT THE SAME TIME.

The food I give my bees is scalded corn meal, baked, sweetened with black Cuban molasses. I then scrape it out from between the crusts, put the same on a plate, and cover it with molasses, and mix it.

MARGARETTA STROUP.

Southampton, N. Y., Feb. 28.

[Years ago this was talked about through the journals, and I succeeded, as some of you may remember, in getting bees to take a mixture of honey and rye flour — that is, early in the spring, before they get pollen. The letter above mentions accomplishing the same thing with corn meal in place of the rye.—A. I. R.]

MOLDY COMBS, ETC.

I should like to ask you how I can prevent molding or souring of honey in the hive, as it seems to in one of mine. Drops of water gather on the covers. Would you keep dead bees from the bottom-board in the cave at this time of year? Will this moldy or sour honey kill the bees? Should I take it out of the hive?

Osgood, Iowa. E. M. THOMPSON.

[The combs referred to in your letter are possibly not moldy in the sense that they are covered with a fungous growth. Combs that have been in outdoor-wintered hives very often show a sort of blue tint as if they were moldy. Whatever this tint is, it does no harm; neither do the drops of water that gather on the covers. Dead bees should be cleaned off from the bottom-boards occasionally.

If the honey in the combs is actually sour (a fact which you can easily determine by running your finger in the honey and tasting) it should not be used, of course.—ED.]

HONEY VINEGAR.

I have seen in GLEANINGS that partly filled sections might be made into honey vinegar. Will you please give the process?

Winchester, Ind. M. N. BORROR.

[The honey in unfinished sections can be extracted providing it is uncapped. It can then be worked over into honey vinegar by diluting with water and putting in the mother or ferment of an old vinegar-barrel. Full directions on how to make honey vinegar are given in our A B C of Bee Culture.—ED.]

REPORTS ENCOURAGING

From 15 hives I extracted 6300 lbs. One hive made 443 lbs., and I took from it four frames of brood in May. I bought my queens of J. P. Moore. I never saw such a season before.

T. L. SHAWLER.

Silver City, Ia., Feb. 14.

I had in spring 12 colonies of pure Italians. I increased to 30 good colonies, which went into winter quarters heavy with stores, and put on the market 1800 lbs of fancy and No. 1 comb honey — about half fancy and half No. 1.

S. S. SCOTT.

Blandburg, Pa., Feb. 10.

I started in the spring with 9 colonies. One had no queen. I bought a three-frame nucleus; made two colonies, and one came to me. I started in the winter with 33 colonies. So far I have lost two. I received 950 lbs. of section honey.

W. E. MCFARLAND.

Paris, Mo., Feb. 11.

I started with one colony in March, 1903, bought four more, increased to eleven, took fully 200 lbs. of honey; paid for all hives, including this year's supply, from sales of honey. I have eleven colonies; am waiting for the weather to moderate.

JAMES M. PULLEY.

Melrose, Mass., Feb. 6.

I received 1200 lbs. of nice comb honey and about 30 of chunk from 18 hives; spring count, 13; increased to 22, but caught four or five stray ones I had seven colonies that never tried to swarm. They made me about 120 lbs. each. I caught a swarm June 28 They filled an empty hive and four supers with nice comb honey.

J. C. LUGINBILL.

Humboldt, Neb., Feb. 6.

A BEGINNER GIVES A THREE-YEARS' REPORT.

When I started with bees I knew nothing about them (except that they gathered honey, which I like, and would sting, which I did not like) June 26, 1900, I bought a swarm (just came out that day). Result for 1900, comb honey, 24 lbs., and brood-nest full, no increase, no care.

I started in 1901 with one stand; increased to four; one got away; surplus comb honey, 63 lbs.

In 1902 with three stands I increased to 11 (sold one); comb honey, 79 lbs., or 26⅓ per stand, spring count.

I started 1903 with 10 stands; increased to 21; result, comb honey, 700 lbs, or 70 lbs per stand.

I winter on summer stands in rough boxes stuffed with chaff; lost none in winter yet.

Long Rapids, Mich. EULAR THORNE.

$500 WORTH OF HONEY FROM 19 COLONIES, SPRING COUNT, ETC.

This has been the best season I have had in 25 years' experience. From 19 colonies, spring count, I find by my book I have sold over $500 worth of honey. I am all sold out; all sold in my home market. I attribute my success partly to giving empty comb, or full sheets of foundation. Many a step could be saved by the amateur if he would adopt my plan. My hives are all covered with galvanized iron, making a very handy place to write the record on. Every time a hive is opened I set down the date and the exact state of the progress in each super; also other things that I may know about them. This saves a vast amount of work. We had a wonderful flow from white clover, but very little from heartsease or smartweed. Generally smartweed is our best flow, lasting until frosts. Basswood did not blossom at all. My bees all flew heavily Feb. 5 and 6. They have consumed a great amount of stores. I never saw the like. I fed 25 lbs. to the colony last fall, expecting them to come through heavy. I must feed in March again.

I saw a criticism in the *American Bee Journal* about the Hoffman frames. I got 25 Root hives last fall. I think the end-bars should be ⅛ inch thicker. I cut all my brood foundation so as to leave ¼ inch at the ends. I have to waste ¼ inch on every sheet, but I never have any buckling, and never have seen drone of any amount built on it.

Marceline, Mo. Jan, 7. IRVING LONG.

OUR HOMES,

BY A. I. ROOT.

Whom the Lord loveth he chasteneth, and scourgeth every son whom he receiveth.—HEB. 12 : 6.

From a recent editorial in the *Sunday School Times*, under the heading "Ought we never to be sick?" we make an extract as follows:

> But God, who is love, is to-day blessing some lives with disease. Through the door of illness he is pouring treasures into the lives of some of his trusting children, without which those lives would be poverty-stricken in comparison with their present wealth.

I read the whole article over several times. It is a reply to a correspondent who thinks the editor of the *Times* does not give sufficient credit to the subject of divine healing. Dowie has been saying, you know, that all sickness is of the Devil, but the position taken by the *Times* presents a pretty strong contrast; and I confess it was, at least to some extent, a new thought to me that God is sending blessings through sickness, pain, and disease. Failing health has certainly made many changes in my life. It has often brought me to a standstill, and forced me to give up planning for larger and greater business. It has sent me out into the world, away from home with its cares and surroundings. It has put me on my good behavior, and made me gentler and kinder, a better husband, a better father. When one is traveling, especially when he is an invited guest, he is *obliged* to be pleasant and good-natured; and so far as I am concerned I am inclined to think the *Times* is at least partly right—perhaps entirely so. Permit me to say that, among all our religious periodicals (and I look over a large number), there is not one that takes a higher stand, morally and spiritually, than the *Sunday School Times*. Let us now go back to our talk in the last issue.

The quiet home life that Mrs. Root and I both enjoy so much was suddenly broken up. There were two nurses and a hired girl; and before we got through there were several doctors. The fever was soon broken up; but Mrs. Root was left very weak and feeble. Yes, in just a few days she was a nervous wreck compared with what she had been. When the first trained nurse came she instituted a new order by way of stillness and quietness. The first thing she asked for was an oil-can. When I inquired what she wanted it for she said there were several doors with "squeaky" hinges; and when Mrs. Root was asleep, it was actually a matter of life and death to avoid every thing that could possibly disturb or awaken her. The serious problem at this time was to get her to sleep and *keep* her sleeping. We were obliged to resort to hypodermic injections of morphine; but the physicians and nurses all declared this was to be only a last resort. I got the oil-can, and volunteered to fix every hinge so there should be no squeak. Pretty soon I was told to go around in my stocking feet or get some different shoes. To be frank, there was some talk of sending me away in order to have things quiet. Now, doctors and nurses are all right; but I knew, and Mrs. Root knew, that it was a settled thing long ago that, when either one of us passed through sickness or went down to death, the other was to be constantly near. Of course, I reformed my noisy ways. I telephoned our shoe-dealer to send samples of the best shoes he had in stock, to be worn in a sick-room. There was one pair all felt—felt soles as well as sides; and I have worn them every day from that time till now—nearly three months. These shoes have been such a blessing to me (as well as to Mrs. Root) that I wish to stop a little and talk about them.

Heretofore, every winter ever since I can remember I have been troubled with corns and chilblains. After I had worn these soft porous shoes a week or two my corns and chilblains began to disappear. Not only that, the thick tough hard flesh or skin that has been the growth of years, on account of wearing hard leather shoes, has gradually disappeared, or been scrubbed off when washing my feet with strong soap and water. Some time ago I told you about having trouble with my feet burning. Two or three years ago up in Michigan my feet burned so badly that I walked on snow-drifts by the side of the road in my bare feet to go to Sunday-school. I even stood in *ice water* in order to cool them off. When spring comes I almost always have trouble of this kind. You may remember I told you that our family physician said my feet did not have ventilation enough—they must have a chance to breathe; and he advised low shoes that would lace down to the toe, or nearly so. That was years ago, and I have worn laced shoes ever since. Well, now, these felt shoes are away ahead. The air can pass in and out on every side, even through the soles. Of course, I can not go out in the wet with them. When you step out you must have overshoes with rubber soles, for protection from snow and wet*; and since my feet have got well they are almost never cold. I wear woolen socks with them, and the wool causes no inconvenience, as it formerly did, because of the abundant ventilation. Let us now go back to the sick-room.

With these felt shoes I could go all over the house day and night, and I at first approached so silently that I frightened the nurse, and once almost gave Mrs. Root a serious fright. You see her nerves were terribly unstrung. However, she very soon learned to expect about so often an assuring touch from me, even if I did not speak, or when she was scarcely able to speak. I know it helped her to be reminded that I did not forget her even for one moment.

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* One of the great troubles here in our clay country around Medina is cleaning carpets and keeping the house free from dust. Nothing annoys Mrs. Root more than to have people come into the house and march straight across the carpet with muddy feet. With these felt shoes that can not be worn outdoors, rubbers or overshoes of some kind are a necesity, and, as a result, I always step on the carpet with clean feet. Perhaps I should add, "Or at least I am expected to do so."

For almost *two weeks* she ate nothing, or almost nothing. Finally, when a little appetite began to come, every thing distressed her so we were all puzzled to find something that would give nourishment without giving great distress. Her digestive apparatus was left in a fearful state. The morphine injections, which I suppose *had* to be given to quiet the nervous spells that threatened her life, very likely helped to get the digestive apparatus out of tune. The doctors all agreed that morphine is very destructive to digestion. I discussed this matter of opiates with different physicians of prominence; and, so far as I could learn, they are almost a necessity in some stages of disease. In fact, there were times when I think Mrs. Root might not have rallied without the assistance of the quieting influence of a little morphine. She and I both feared that she might get her system in such condition she could not get along without it. The doctors and nurses agreed, however, that there was no possible danger with the small dose (⅛ grain) we gave once (and very rarely twice) in 24 hours. When we discontinued its use entirely she missed its effect only a little during one night. After that, there was no trouble. I think there is little or no danger unless it is used immoderately by inexperienced people.

The question of brandy also came up, Mrs. Root and I both object to it, even in the sick-room. We have objected to it all our lives, and do yet; but the physicians and nurses were so sure it would be unsafe to dispense with it, we yielded to them. She took quite a little brandy—of course, in small doses. We both watched its effect; and it is her firm conviction now that she would have got along quite as well without it, and I entirely agree with her. I know it is a somewhat serious matter to disagree with experienced doctors and trained nurses, and we accordingly submitted to them; but after getting all the light on the subject we possibly could, and after weighing the matter not only carefully but *prayerfully*, we are both satisfied in our own minds that there is no need of brandy in the sick-room. I am glad to know there are physicians, and prominent ones too, who stand right with us in this. One of the physicians on the Ohio State Board of Health declares there is no need of intoxicating liquors in treating the sick. When one of the nurses ordered a bottle of whisky, without my knowledge, I sent it back to the drugstore. It *may be* that *brandy* is sometimes needed, but when it comes to prescribing whisky I draw the line. When I spoke of sending it back somebody said, "It would be handy to have in the house." Now, it is *not* handy to have whisky in our house, and, thank God, it never will be while Mrs. Root and I live to manage things—and, for that matter, brandy either. The brandy that was left has been made into camphor.

TRAINED NURSES.

It was a great privilege to me to get acquainted with two up-to-date trained nurses. One of them was educated in Cleveland, if I am correct, and the other recently graduated in Boston, Mass. In the first place, their teachings were in perfect harmony with each other; and one prominent characteristic of both was their demand for plenty of ventilation and outdoor air. Even during the zero weather there was a window or two open a little almost constantly; and it rejoiced my heart to see how up-to-date they were in all sanitary improvements. Few doctors, so far as my experience goes, watch every symptom as did these nurses. Any change in pulse, temperature, or breathing, was noted on a paper chart. They knew all about the action of the bowels, the operation of the kidneys, and every phase of the disease was carefully studied. A trained nurse must be strong and well. Indeed, she would not be a very good advertisement for her business if she were not strong and well. They must be ready to take charge of any patient, no matter if he has smallpox, cholera, yellow fever, or any thing else. They must be strong physically to handle a patient, and they must be sufficiently gentle and skillful to handle him without giving him pain. I thought I could handle Mrs. Root without hurting her; but I soon had to admit that I hadn't the skill (even if I had the strength) of a trained nurse. These nurses knew all about doing every thing that can be done to make the patient feel easy and give him sleep. They know all about hot-water bottles, poultices, plasters, how to put them on and take them off.*

After Mrs. Root had been several weeks in bed she became very sore, especially at the time when she was on her back all the time and could not be turned, even on her side. The nurse advised a rubber bag inflated with air, with an opening in the center. This opening is to be put under the portion of the body that has become sore from touching the bed; and then the bag is inflated just enough to be comfortable. I thought they carried the matter of daily bathing a little to excess, but perhaps they were right. They kept the patient as clean as soap and water could make her, from the top of her head to the tip of the toe. I was inclined to think clean water was good enough to wash with; but the doctors and nurses insist that alcohol possesses great virtues for bathing the sick. This may be true. I do not feel inclined to quarrel with them so long as they use it only externally.

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* It was a happy surprise to me to find out that these trained nurses were perfectly sound on Electropoise, Christian science, absent healing, and every thing of that sort. Of course, they had both seen many startling cases of patients that were miraculously cured, apparently, by all of these agencies; and they are well aware, too, of the wonderful effect that the mental state of the patient may have over even acute troubles; and I fear right hear I have omitted to say that the nurse must necessarily be bright and cheerful. No matter what worries and troubles her, she must be ready to cheer, brighten, and encourage, and, if it is possible, get the patient to laughing. One day I was almost frightened to hear Mrs Root's ringing laughter once more. I was afraid it might be hysteris; but it was only a laughable story from one of the nurses. Perhaps I should say we had two nurses at once, for only a short time.

WHAT SHALL WE GIVE THE INVALID BY WAY OF NOURISHING FOOD?

At a certain stage of Mrs. Root's disease, I for one began to fear she might starve because we could find nothing that would stay in her stomach, or that the bowels could digest. Somebody recommended the juice of oranges. I felt a little fearful at this; and when it caused such bloating and distress that it almost stopped her breath, I was much more alarmed. She had been getting along so well that our regular family physician ventured to take a trip into another State. He expected to be away only a little more than 24 hours; but soon after he was gone her distress became so great that we called in a young army surgeon, who had been a schoolmate of Ernest's, and who had recently returned from the Philippines. In the doctor's absence he kindly consented to advise us. He said she would have to be relieved immediately of the accumulation of gas in the bowels. The nurse had tried the usual injections, but without relief. He suggested that she try "milk of assafœtida." This succeeded when every thing else failed, and in a few minutes she passed from acute suffering to entire relief. Then we discussed the matter of nourishment. Beef tea, malted milk, malted nuts, and many other things were tried, but they did not answer at all. They either produced the dreaded gas or else they would not stay in her stomach at all. Finally one of the nurses said that we should have to feed her on scraped beef. We got the best round beefsteak in the market, then the nurse scraped it with a dull knife, getting only the pure lean meat without any gristle, fiber, or fat. This was then broiled over a bed of hot coals, and there was rejoicing throughout Rootville. She ate this scraped meat with a relish, and it digested all right. Those who have read GLEANINGS for a few years back will remember how much has been said in regard to the fact that lean meat digests entirely in the stomach, and will keep a patient alive without any distress in the bowels whatever. She lived on this scraped meat until her digestion became strong enough to use beefsteak ground in a meat-grinder, such as can be found in almost any hardware store. Let me digress a little.

During my spells of ill health for almost twenty years past, I have been more or less on the lean-meat diet. Ernest and other members of the family have also been obliged to resort to it. Mrs. Root has cooked beefsteak for myself and for the children through all these years until at times it would not be strange if she hated the sight of it. But she has never eaten any of any account herself. She has sometimes laughingly boasted that, although almost a vegetarian, she was the healthiest one in the lot. I confess I was pleasantly surprised to find that, when she was almost down to death, the beefsteak diet brought her up when it is highly probable she could not have lived without it.[*] Dr. Lewis, of Cleveland, the present advocate of the lean-meat diet, kindly came down to see her, and gave us some very valuable suggestions. For instance, she had neglected the hot water, a pint or more to be taken just before going to bed, and an hour or more before each meal. This was a great help to her. Although she is eating every thing at the present time, she still holds on to her pitcher of hot water. I am quite sure a pint or more of hot water taken as above would be a great benefit to anybody, especially one in poor health. God certainly intended we should have water in abundance, and make use of it, internally and externally. "Wash ye, make you clean."

Let me say in closing what I have said several times before, that my firm conviction is that thousands of people might be living now who died before their time had they known the benefit of a strict lean-meat diet when the digestive organs, especially the bowels, are unable to digest and assimilate vegetable foods. Just one more thing I wish to add.

In passing through this siege, and in deciding these matters in regard to health for the rest of the world as well as for our own home, I have been constantly praying that God would guide me, and keep me from making a mistake in what I write for the friends who read this department.

Later.—Mrs. Root says, after reading the above, that I must not forget to mention rice. In leaving the meat diet for other things we found rice agreed with her better than any other food. It was first boiled up several times, the water poured off, and then steamed for four or five hours. Thus prepared for invalids, we consider it ahead of the many food preparations now made.

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[*] Mrs. Root had said previous to this sickness, perhaps many times, that some people might be able to stand the beefsteak diet, but was sure she could not. Well, when we found by repeated trials there was nothing else that would give her strength and nourishment, she said to me one morning while eating her four ounces of nicely cooked ground meat, "I think, husband, I had better be honest, and confess that, since I have become accustomed to the meat diet, I prefer it now to any other *menu* the world can furnish. And I want to say one thing more. If you should ever be on the lean-meat diet again I shall have more charity for you. You used to say it seemed as if you could not wait until the meat was ready. When I get exceedingly faint and nervous from a lack of rations, it now seems to me as if I could not wait a minute longer." At this time Mrs. Root was having four ounces of ground meat four times a day. Between meals she had a little zwieback; but we had to make the zwieback rations very small, or else we should have had recurrence of the accumulation of gas in the bowels; but after giving the bowels a resting-spell (or *almost* a perfect rest, for two or three weeks) she gradually recovered her health, and now eats every thing with impunity, just as she always did.

HEALTH NOTES
BY
A. I. ROOT

ELECTROPOISE, OXYDONOR, ETC., ONCE MORE.

The Electropoise is considered one of the household blessings here. I put myself through a spell of typhoid with it. I never saw a doctor nor had a dose of medicine. I never lost a fine head of hair, and the five or six weeks' illness cost only the price of the ice used. I could give a dozen cases of other troubles man is heir to, cured by it. We have been using it in our family for nearly twenty years, and consider it one of God's good gifts. SARAH A. TILLINGHAST.

Morganton, N. C., March 8.

My good friend, I am exceedingly glad you got through the typhoid so well, and without any doctor; and may God help me in my effort to convince you that the Electropoise had nothing whatever to do with your recovery unless it was to keep you quiet and give you faith that all would be well. Let me repeat what I have been saying again and again through GLEANINGS for nearly ten years past: There is no electricity, no oxygen, no sense nor science about Electropoise at all. Furthermore, the wicked men who sell it *know* this. If you will take the thing apart you will find the metal shell is filled with sulphur and graphite, or something of that sort. Some of them contain one thing and some another. But the machine will work exactly as well if you empty out the contents—that is, if your imagination would work just the same. It is not an apparatus in any sense at all. It is only an empty fraud. You speak about the expense of the ice. The manufacturers claim that the cold, or something else produced by this melting ice, passes along that single wire. Your family physician, schoolteacher, or anybody else at all conversant with electricity and science, will tell you the whole thing is ridiculous. Prof. H. W. Wiley, United States Chemist, pronounced it at once pure charlatanism. The back numbers of GLEANINGS will give you any amount of proof of every thing I have said. Before the inventors could get a patent (and it is true they have a sort of patent) they were obliged to admit to the experts at the Patent Office that the device was simply to work on the imagination of the patient. No patent would be granted so long as they claimed thermo-electricity or any other sort, nor so long as they claimed it took oxygen out of the air and put it into the human body. In order to get any patent they had to be honest, at least toward the Patent Office, *for a few minutes*. Then they kept on publishing their fraudulent statements about electricity and oxygen just as before.

Now, if the thing continues to cure you people after the above explanation, all right—go ahead. But, my dear friend, you have unconsciously given us a wonderful revelation; and this fact is being emphasized again and again if the world would only wake up and recognize it. It is this: Thousands of dollars, and I might almost say millions, are spent for things to cure disease that neither help nor hinder in any way. Probably a greater part of the medicines used have nothing whatever to do with the recovery, for nature makes the cure and the medicine gets the credit. You have given us plain proof that people can get through typhoid fever, and get well, without any medicine or doctor. Many of the best thinkers of the present day are suggesting that people might, many of them, get along better without a doctor—that is, the kind of doctors that are altogether too common. The physician who comes into your home, and looks after the water you drink, the air you breathe, and tells you to keep still long enough to give nature a chance, is all right. May God speed physicians of that class; and where the patient would not be satisfied unless he could have some medicine, because it has so many years been the fashion, perhaps a harmless medicine is all right. It simply takes the place of the Electropoise as in the case mentioned above. May God hasten the day when people may come out of darkness into the light in this matter of helping the sick.

HIGH PRESSURE GARDENING
BY
A. I. ROOT.

MY ROASTED-CHESTNUT POTATO; SOMETHING ABOUT IT FROM THE ORIGINATOR.

I advised you not to plant them, not only because they were hollow, but because most of them rotted badly around the hollow. I started those and the white ones and many others from the same seed about seven years ago. All were soon discarded but the red and white, and now comes the strange part of it. The second year from the seed the red ones grew as large as they do now, and I had about a bushel of them, and not a hollow in them; and such beauties to cook! and such a flavor! But you know about that. The third year they were the same, and we thought we had a bonanza. The next year a little hollow appeared, and grew worse and worse until I sent some to you, when they were so bad I thought it would not pay to raise them any more. May be you can bring them back again to their first excellence. If you can, you will have a prize. I can not understand why they grew so badly, as the others did not on the same soil, side by side. I called them "Pink Beauties," for I never saw a finer sight in the potato line than they were when first dug, stretching across the field like a pink ribbon. If you raise them again, just take a look at them in the row when first dug. BENJ. PASSAGE.

Detroit, Mich., March 20.

Since friend Passage mentions it, I remember that many of them were disposed to rot around the hollow. It is very strange indeed that they should be all right two years, and then suddenly develop that hollow peculiarity. Will friend Passage tell us if he tested them on different soils? We now discover they have been tested only in Michigan; and perhaps our Medina clay soil may give us some that are not hollow. "Pink Beauties" would be a very appropriate name. When I first picked them out of the sand, and washed them in clean spring water, I thought they were the handsomest potatoes I ever saw, and I recollect now the brilliant pink *flowers*. Owing to the accident I have told you about, they were scattered here and there over the field; and when they were in full bloom they were so handsome they might do very well for a greenhouse plant.

SWEET CLOVER FOR ORCHARDS, VERSUS CRIMSON.

Friend Root: Recently in New York Mr. F. E. Dawley, Superintendent of Farm Institutes, told me he was growing white melilot in his orchards. Every third year he ripens seed, cultivates the ground, and scratches in the seed in the chaff with a weeder. He says seed kept over is not likely to germinate. The other years he mows it and lets it lie as a mulch through fall and winter. He got his first seed by getting in as road supervisor, and letting the wild roadside crop ripen its seed. Very likely some of your New York readers know Mr. Dawley. He said he was getting a reputation for slovenliness in growing weeds, but nevertheless it answered as well as or better than crimson clover. L. B. PIERCE.

Tallmadge, O., Feb. 16.

Tobacco Column.

THE TOBACCO INDUSTRY(?) — DAYLIGHT AHEAD

You can not imagine the condition of this part of the country where tobacco is almost the sole money crop. We can't sell at any price — every thing tied up. I was thinking the other day of friend A. I. Root's talks, and wondering if Divinity was not going to show us that, in raising the vile stuff, we were commiting a sin. In raising it we exhaust our lands. We wear out our strength, and we place upon the market something that is of no value on earth to any one, except merely as a destructive agent, as, for instance, an insecticide. Ask the old gentleman what he thinks of this, and let us hear from him. R. C. HOLLINS.

Hadensville, Ky., March 18.

Now, I am afraid some of the friends will think I am hard hearted when I say, "May the Lord be praised for the fact that tobacco in at least one spot in the world is a drug in the market." Perhaps those who use it will be on my side because it will not cost them so much in the future. But, seriously, it would be strange indeed if it were not true that, with the education and intelligence that now are spreading over the whole earth, clean pure minded people did not begin to think of throwing off this yoke of bondage imposed on us by tobacco. For many years we have been told its use was on the increase. May God be praised if a turning point, or, better still, a revolution, were coming. There are thousands engaged in growing tobacco whose consciences are troubled by it. I have talked with them again and again. I have been told over and over that what our brother says above is true. It exhausts the land and deadens the conscience. In a town not ten miles from Medina, where tobacco-growing is all the craze, one church-member confessed to his pastor that growing tobacco is bad business for a Christian. "But" said he, "there is *money* in it, and we *must* have the money." I do not know just what the pastor replied; but I should have answered, "What shall it profit a man if he gain the whole world and lose his own soul?" And just now it transpires that he not only loses his soul but he fails to gain any thing at all. He wears out the land, and does not get the money he expected.

THE ALMANAC WEATHER-PROPHETS; INFLUENCE OF THE MOON ON THE WEATHER, ETC.

A few days ago an editorial appeared in the Cleveland *News and Herald* to the effect that the U. S. Weather Bureau indorsed the "moonshine" notion — that is, that the changes of the moon influence the weather, etc. At the time I mailed this clipping to the Bureau I inclosed the article which was published in our issue for Jan. 15, in regard to Hicks and his almanac, etc. Now, as some of the readers of GLEANINGS still insist that Hicks is scientific, I here give the answer received from the Weather Bureau:

Mr. A. I. Root:—I have to acknowledge receipt of your letter of the 16th instant, inclosing an article published in your journal of January 15, and to thank you for your vigorous arraignment of fake forecasting, which is along right lines.

The statement in the Cleveland *News and Herald* in relation to the influence of the moon on weather is not authorized by any publication of the Weather Bureau.

Very truly yours,
WILLIS L. MOORE,
Chief U. S. Weather Bureau.

Washington, D. C., Feb. 27.

Please notice, friends, that the above comes from Willis L. Moore, Chief of the U. S. Weather Bureau; in fact, the letter contains his signature.

Just a word more in regard to Hicks and his almanac which a good friend mailed me. I have carefully noted the almanac and the weather since that article was written, Jan. 7, and there has not been the least encouragement from these observations to believe that Hicks knows any more about the weather than anybody else. His almanac does not make even a suggestion of the severe winter that is just passed—so severe, in fact, that it scarcely has a parallel. There was not a suggestion in the almanac in regard to the thaw, Jan. 21, that caused such a loss of property and life. If his astronomical studies in regard to the moon and planets, as he avers, gave him any insight as to what the weather for the past winter was going to be, he certainly would have made mention of the severe winter in plain and unmistakable terms; and he would also have considered the sudden rise of temperature for just a few days, after which the winter resumed its sway and continued so till the first of March.

It seems to me the above suggestion, coupled with the indorsement of the Chief of the Weather Bureau, ought to convince any in the pursuit of true science that no man living at the present time can tell any thing about the weather ten days ahead, much less point out what it will be day by day for a whole year.

KEEPING MACHINERY IN REPAIR.

BY A. I. ROOT.

I had in mind putting this article under the head of the Home department; but some might object, and say that the home has not very much to do with machinery. I think it has, however, a great deal to do with it. The kitchen pump is a machine, or, if you choose, the pump outdoors. So is the coffee-mill, the clock, the clothes-wringer, the wheelbarrow, and, I was going to say, the horse and buggy. Even if there is not very much "machinery" about a horse, there is considerable about the harness; and when it gets to the buggy, to say nothing of implements for gardening and farming, I think we shall have to decide that every home in our land might with profit take lessons in regard to keeping machinery in repair.

It really gives me pain when I visit beekeepers or other people, and see machinery condemned as useless when a little care in repairing might have kept it in good order. We have all seen it in fence-corners, occupying valuable room in outbuildings, and sometimes scattered about in the dooryard. The old saying, that a stitch in time saves nine, applies to this matter of repairs, perhaps, more than to any thing else. Machinery gets out of order, or comes to pieces because the bearings get loose; and I do not know but *human beings* get out of order and come to pieces because they are obliged to use rickety, rattling implements. The kitchen pump makes a great clatter when you pump a pail of water, because it is not kept in order. When you have sickness in the family, and the sick one is just getting a little sleep, you may begin to think of these things. Let us take the pump first.

There are two joints in every pump that should be tight and snug—the fulcrum of the handle, and the joint where the handle is attached to the rod of the plunger. Constant use wears these joints. Usually the best remedy is to put in a new bolt—one that fills the holes of all three of the bearings close and tight. If the hole in the single central bearing has worn larger than the two holes in the other piece, the first thing to do is to make these holes all the same size. Bore out the small ones until they are of the same size as the largest one, or nearly the same; then get a bolt or pin that fits snugly in all three. Make it so close when first repaired that it will turn a little hard; but oil it frequently and you will soon have a quiet smooth-working joint. It is better that the rivet or pin be absolutely tight in *one* of the pieces—that is, so the bolt or pin does not turn when the pump is worked. This prevents the rivet or bolt from getting loose or dropping out, and reduces the wear to just one piece of the machine. Now, with a little sewing-machine oil-can close by, you can keep these joints all well oiled. Some of you may urge that this is a plumber's business. Well, if you have not had experience in hiring *plumbers*, send and get one. Every man who has a home of his own, especially if he is obliged to work hard to make both ends meet, should do his own repairing about home. The long winter evenings are a splendid time to do such work. When I get tired reading the magazines and papers I really enjoy taking my kit of tools and fixing the door-locks, pump, the clothes-wringer, and every thing else that squeaks or rattles, and wears on the nerves of the good wife. Some of you may urge you have not skill in this line. Well, then you had better go right to work and learn. If you have a genuine love in your heart for the dear wife you will soon acquire skill. If you send for a plumber or other mechanic he will tell you your pump, sewing-machine, or something else, is all right, make a big bill, and go off with his tools. When he is well out of sight the machine will go wrong again. If it is the man of the house who does the work, he can watch it and go at it again and *again* until he comes out victorious; and this he sometimes does where the regular mechanics give it up.

A little attention to "bushing" saves a lot of money with all kinds of machinery. Some of you may not know what the word *bushing* means to a blacksmith or a jeweler. Well, it is putting in a tube or a crescent-shaped piece of metal to reduce the size of a hole that is worn too large. When I was a boy, the country was full of wooden clocks. After forty or fifty years' use the holes in the wood became too large, and most jewelers told the owners of the clocks that they were not worth fixing, in order to sell them a new one. We had in this region, however, an ingenious old man they called the "clock-tinker." He invented a plan for bushing wooden clocks. He carried around a bundle of goose quills and hens' feathers. He would cut off from one of these quills a short tube that he could push into the hole in the wooden clock where it had become too large. This could be managed so as to reduce the size of the hole just right. Then the steel pivot in the clock-wheel had an *ivory bushing*, for the quill or the feather is equal to ivory. He said this quill bushing would never wear out, and I guess he was pretty nearly right about it. In any small machine where you want pivots to run easily, and without wear, bush the holes with a quill. Let us now go back to the pump.

Sometimes the hole in the plunger wears oblong or egg-shaped at the joint. The other holes in the bolt may be all right. In this case we will take a piece of metal—brass is better than iron—and file it something in the shape of the new moon so as to fit the enlarged hole, and leave a smaller hole at one side. A neater way is to melt and pour in some babbitt metal to take the place of the metal that is worn away. That is the way they do in machine-shops. Babbitt metal wears better than iron or steel, and makes less friction. See that there is nothing about the clothes-wringer, pump, or any thing else, that "wiggles." Our clothes-wringer is attached to a stand that holds the tubs; but every little while the uprights get to wiggling back and forth as the women turn the crank. By the way, my good friend, do you ever help your wife wash just a little while, turning the crank just long enough to see whether every thing she uses is in apple-pie order? If you don't, just try it some day. I think I can say from experience that it will make you happy, whether it makes her so or not. You might give her a kiss after you get every thing fixed all right.

Now, during all of this talk, my friends, I have had my automobile in mind; and I want to tell you something about keeping autos in order. I do not suppose that many of you will ever have this work to do; but the same suggestions will apply to your wagon and buggy more or less, and to all other kinds of farm machinery.

REPAIRING AUTOMOBILES.

Our automobile has been doing excellent service all winter, ever since I wrote to you about it last; but it has been a little too hard for me to turn the starting-crank to get it under way. Huber said, when he was at home during the holidays, that it need not turn so hard; and he fixed it so it started very much easier. Pretty soon it got back into the old trick. One day I decided to study out why it did not start as easily as when Huber fixed it; and after tracing the mischief along, I found a little steel wheel that had got one corner worn off clear round. Its office was to raise a cam on the compression-valve; and the cam had got to slipping over outside of the steel pulley. It did not take long to decide that, if the pulley were turned over so as to have the other side or corner, which was perfect, raise the cam, it would be as good as new. So we removed the pivot and took the wheel out; but, behold, the rivet it turned on was worn almost half in two. When we were on that trip up through Michigan, in that sandy region, we were probably careless about getting oil into this particular part, and at the same time it had been cutting badly. Now, right near this little steel pulley there are *two more* just like it. They operate the valves that let the explosive gas into the cylinder, and then let the exploded gases out after they have done their work. We made a careful examination, and found that the rivets or bearings to these other wheels were worn in like manner. All three were loose on the rivets, and would rattle about more or less. I said they should all be put in good order. The holes in the arms to hold these wheels were reamed out until we could just get a tempered steel pin through the wheels. That made a close tight fit. Then they were well oiled, and put back in their places in the auto. What do you suppose the result was? The machine not only started so easily that any child could turn the crank, but it shot off like a young colt. It seemed to me as if it gave almost double the power, and it required only about half as much gasoline. Why, I could run over town, up hill and down, without using the "speeder" at all. Hitherto I had been doing most of my running with my toe on the speeder. I had also been able to slow up in passing a team by the spark-lever, without releasing the clutch at all. After these repairs the machine would go right along at a good speed with the spark-lever pushed down as far as it would go.

After succeeding so well with this part of the machine, I began examining the levers in the steering apparatus. I found the joints were very much worn and loose. When it is bad muddy weather, we run the auto up town on the track of the electric railway, or between the tracks. It had been all winter long a hard matter to keep the machine exactly in place. After closing up the joints and steering apparatus, it was no effort at all to run right on top of the rails, even at a good speed. I thought I was not only careful with machinery, but a pretty good hand to look it over; and yet I had been very careless in these two respects. I was not only losing the benefit of what the machine could do, but I was letting it wear itself out by my carelessness. I had been keeping every thing well oiled, but this is not all. You want to be sure that your joints are all tight and snug. As my machine seems to be doing even *better* work now than when I first bought it, I am inclined to think the manufacturers did not have these bearings in the first place as perfect as they might have been.

I know there is a natural inclination to dread getting at jobs of this kind, especially where one is going to soil his fingers, and clothing too, if he is not careful. But after you once get at it, and experience the good results you get from having every thing in good order, I think you will learn to enjoy it. Why, I have of late sometimes almost wished there were some work to be done with my auto, because I so much enjoy working with it. After I have been in the office reading and answering letters until I feel clear used up, I can turn my attention to something that needs repairing; and if I succeed in making the repairs *just exactly to my notion*, I forget all about being tired; and then I do really enjoy helping the world along, by repairing or making adjustments, so that *somebody's* work is easier than it has been heretofore.

RADIUM—DOES IT STILL HOLD OUT?

Yes, friends, it is still at it. The bombardment continues exactly as it did when I first received it; and I tell you it is a wonderful thing to see this radio-activity constantly pouring forth its showers of meteors day and night, week days and Sundays, summer and winter, for ever and ever—that is, so far as we have yet explored the matter.

Greider's Fine Catalog

of Prize-Winning Poultry

for 1904. This book is printed in different colors. Contains a Fine Chromo of lifelike fowls suitable for framing. It illustrates and describes 60 varieties of poultry, ducks, geese, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and such information as is of much use to all who keep chickens. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.

THE SUCCESSFUL

Name of the best Incubator and Brooder made. It's not a chance. They're right in principle, work right. Require least attention and give best results under all conditions. All users say it. Eastern orders promptly filled from Buffalo house. Incubator Catalog free, with Poultry Catalog 10 cts.

Succeed with a Successful

Des Moines Incubator Co.
Dept. 503, Des Moines, Ia.

IT IS A FACT

that poultry pays a larger profit for the money invested than any other business; that anybody may make a success of it without long training or previous experience; that the **Reliable Incubators and Brooders** will give the best results in all cases. Our **20th Century Poultry Book** tells just why, and a hundred other things you should know. We mail the book for 10 cents. Write to-day. We have 115 yards of thoroughbred poultry.

RELIABLE INCUBATOR & BROODER CO., Box B-49 Quincy, Ill.

20 YEAR GUARANTEE

Goes with the old original **Prairie State Incubators and Brooders.** U. S. Government uses them exclusively. Have won 382 first prizes. Our free catalog interests poultry raisers. Send for it.

PRAIRIE STATE INCUBATOR CO.
Homer City, Pa.

NO GAS TO KILL

Very little lamp gas in an incubator egg chamber often kills every germ. No gas can possibly creep into the

SURE HATCH INCUBATOR

because it's heated by our rustless, heavy copper, hot water circulator. Don't waste money and lose good eggs experimenting with poor incubators. Send for free catalogue C 10 and learn why the Sure Hatch hatches *sure*. **Sure Hatch Incubator Co., Clay Center, Neb. and Indianapolis, Ind.**

No Cold Corners

In Iowa Round Incubators

No half warmed eggs. By "round" system every egg gets same heat—bigger per cent of eggs hatched. Special regulator overcomes atmospheric changes. Free catalog tells the whole story.

IOWA INCUBATOR COMPANY, BOX 197, DES MOINES, IOWA

This is the Limit

A Hot Water, Self-Regulating, 50 egg Incubator $4.50. $3.00 and up for Brooders. All on **30 DAYS' TRIAL.** No agents. You pay no middlemen's profits. See catalogue for "100% Hatches." Write

BUCKEYE INCUBATOR COMPANY., Box 64, Springfield, Ohio

$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

GEO. H. STAHL, Quincy, Ill.

POULTRY SUCCESS.

14th Year. 32 TO 64 PAGES.

The 20th Century Poultry Magazine

Beautifully illustrated, 50c yr., shows readers how to succeed with Poultry.

Special Introductory Offer.

3 years 60 cts; 1 year 25 cts; 4 months trial 10 cts. Stamps accepted. Sample copy free. 148 page illustrated practical poultry book free to yearly subscribers. Catalogue of poultry publications free.

Poultry Success Co., Dept. Springfield, O.

Make Your Own Fertilizer

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Wilson's Phosphate Mills

From 1 to 40 H. P. Also **Bone Cutters**, hand and power, for the poultrymen; **Farm Feed Mills, Graham Flour Hand Mills, Grit and Shell Mills.** Send for catalogue.

WILSON BROS., Sole Mfrs.,
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EGGS from Buff, Barred, and White Rocks; Silver laced and White Wyandottes; Buff Orpingtons; Single-comb, Buff, White, and Brown Leghorns; Black Spanish; Black Minorcas; Red Caps, Silver-spangled Hamburgs. Price list free. Reference, The A. I. Root Co.

The QUALITY POULTRY YARDS, Medina, Ohio.

THE POULTRY REVIEW, containing monthly a comprehensive review of the best poultry papers published; 50c a year; with this paper, $1.00 a year. Before subscribing elsewhere get our clubbing rates.

The Poultry Review, Dept. IX, Bustleton, Pa.

Farmers' Handy Wagon

With 4-Inch Tire Steel Wheels

ONLY

$21.95

Low and handy. Saves labor. Wide tires, avoid cutting farm into ruts. Will hold up any two-horse load. We also furnish **Steel Wheels** to fit any axle. Any size wheel, any width of tire. Catalogue free.

EMPIRE MANUFACTURING CO., Box 91, Quincy, Ill.

Spring is Here.

You will need seeds for your garden, and we can furnish you

The Best at the Lowest Prices.

Have you seen our catalog? Write us a postal, mentioning Gleanings, and we'll send you a copy, and include a trial package of our improved **Fordkook Fancy Tomato.**

E. C. Green & Son,
MEDINA, OHIO.

LARGEST Clover, Grasses, Timothy and Fodder Plant Seed Growers in the U.S. Operate over 5000 acres.

FOR 8 CENTS

and the name of this paper we will mail, free, samples of Clover, Grasses, Fodder Plants, etc., together with mammoth **140 page Seed Catalogue**, well worth $100 to every wide awake farmer. **Send to-day.** **F. 04.**

JOHN A. SALZER SEED CO.
LA CROSSE, WIS.

12 Pkts SEEDS THE BEST TO BE HAD 20c

96 PAGE CATALOG FREE TO ALL

Beet, Egyptian; **Cabbage**, Surehead; **Carrot**, Danvers; **Corn**, Early Evergreen; **Cucumber**, Russian; **Lettuce**, Early Curled; **Musk Melon**, Paul Rose; **Water Melon**, Sweetheart; **Onion**, Prize Taker; **Radish**, Scarlet Turnip; **Squash**, Marrow; **Tomato**, Beauty. **One packet each for 20 cts. coin or stamps. FREE with order, packet of ESSEX RAPE.** Mention paper.

W. W. BARNARD & CO., 161 KINZIE ST., CHICAGO

450,000 TREES

200 varieties. Also **Grapes, Small Fruits etc.** Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. **LEWIS ROESCH, Fredonia, N. Y.**

MAYFLOWER GIRL

25 PACKAGES SEEDS AND BULBS MAILED FREE 15¢

1 package each of Evening Primrose, Monkey Vine, Balloon Vine, Baby Breath, Blue Bells of Scotland, Eastern Star, Petunia, Mixed Daisy, Mixed Asters, Begonia, Mixed Poppy, Mignonette, Calliopsis, Portulaca, Sweet Peas, Cypress Vine, Pansy (mixed), Larkspur, Nasturtium, Sunflower, Salvia, Balsam, Everlasting, Gloxinia, Wild Flower.

25 BULBS 1 Madeira Vino, 1 Calla, 2 Gladiolus, 4 Cinnamon Vines, 1 Anemone, 2 Hyacinth, 1 Tuberose, 1 Mayflower Lily, 1 Olympia Lily, 1 Jericho, flowers in ten minutes, 5 Choice Mixed Bulbs from Philippine Islands, 5 Bulbs for Hanging Baskets.

OLYMPIA LILLY

Will mail you FREE this fine collection of 25 packages Choice Flower Seeds and 25 Bulbs for 15 cents in silver or 8 two cent stamps.

Will send Seed Check and Catalogue free by sending your order at once.

MEDFORD SEED CO.
MEDFORD MASS.

More Potatoes

and better ones, earlier to mature and using **less seed**, if you plant with our

Acme Hand Planter

Deposits seed at just the right depth in moist soil. Neither seed nor soil can dry out. Seed grows at once. This is the cheapest way to plant. Easiest too. Works well in any soil, sod or new land. If dealer can't furnish send **$1.00** and his name; we'll ship **charges paid.** Write today for our Booklet, "The Acme of Potato Profit." **Potato Implement Co., Box 20, Traverse City, Mich.**

Spray Apple Trees.

There's no other way to get right fruitage. Its mounted barrel tank, submerged brass cylinder, bronze ball valves and automatic agitation make the

CENTURY SPRAYER

the ideal for all orchard operations. All kinds sprayers for all purposes. 20 styles, **Hand, Bucket, Knapsack, Barrel, Field, Power.** Special needs all met. Catalog free. Booklet on insects and fruit diseases 10c.

THE DEMING CO., SALEM, OHIO.
Henion & Hubbell, Western Agents, Chicago, Ills.

Walter S. Pouder. **Established 1889.**

Bee-keepers' Supplies.

Distributor of Root's Goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Co., and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee Smokers, Bee-veils, Pouder Honey-jars,

.........and, in fact, everything used by Bee-keepers........

Headquarters for the Danzenbaker Hive.

Investigate its merits. A 64-page book telling all about it with many valuable ideas about producing comb honey will be sent for a two-cent stamp. I am anxious that you do not place your order for supplies till you have examined my new catalog. I make QUALITY and RELIABILITY of goods the main issue, as many of you know, and I have never found it necessary to cut the price in order to compete with inferior goods. My prices are, however, as low as they can be made and still maintain the present high standard of quality. My business has had a wonderful growth and I am occupying larger quarters with the largest stock that I have ever carried. I take good care of my customers and that is one reason why my business grows, but, to be modest about the matter, the greatest reason for this growth can be attributed to the quality of goods that I am handling. Bee-keepers, I believe, want the best and would not be satisfied with anything else. Get ROOT QUALITY FROM INDIANAPOLIS and you will be more than satisfied. :: :: :: ::

A Sample Letter.

Newman, Ills., Mar. 11, 1904.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—Find order enclosed which you may ship as early as convenient You may wonder why I did not order more hives; I will explain to you that I bought 50 hives and a lot of sections last fall from another firm. I did this because they offered the goods at the old prices. I do not like the hives, and thought I had better return to the fold. Truly yours,

C. F. BENDER.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package.

My large illustrated catalog is free, and I shall be glad to send it to you

WALTER S. POUDER,

513-515 Massachusetts Ave., - INDIANAPOLIS, IND.

Small Favors Make Fast Friends

To make customers, and to make these customers life-long friends, the Society has adopted a plan of offering regularly, each month,

SPECIAL BARGAINS

In the National Co-Operator, at Prices far below Regular Catalog Quotations.

(See Below)

Send 15 Cents (in coin or stamps) to The First National Co-Operative Society (Cash Buyers Union), 158-168 West Van Buren Street, Chicago, Illinois, and they will send you, all charges prepaid, the following:

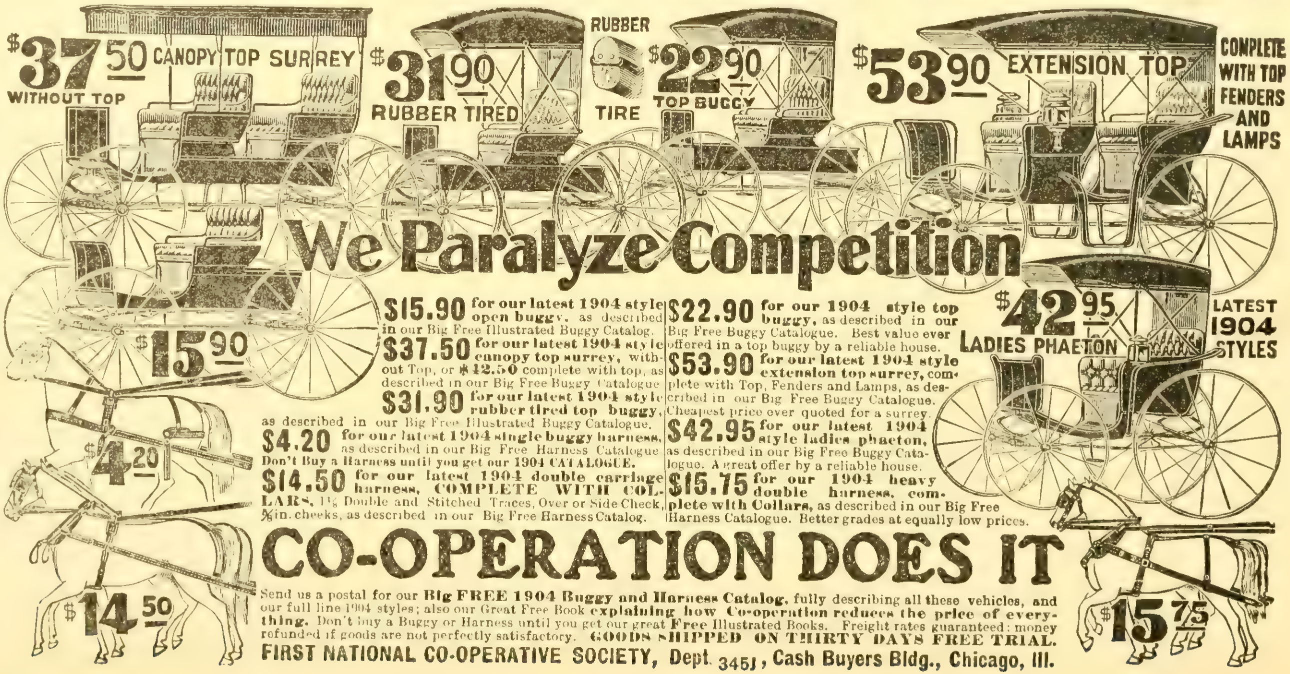
⁂

1. Their Big Co-Operative Catalog and Price List containing a complete line of general merchagdise at the lowest known prices.

2. A Year's Subscription to their Wholesale Grocery Price List, which alone will save you at least $100.00 a year on your living expenses.

3. A Year's Subscription to "The National Co-Operator" (issued monthly; 50c per year.)

4. All Special Bulletins which may be Issued from Time to Time.



$15.90 for our latest 1904 style open buggy, as described in our Big Free Illustrated Buggy Catalog.

$37.50 for our latest 1904 style canopy top surrey, without Top, or **$42.50** complete with top, as described in our Big Free Buggy Catalogue

$31.90 for our latest 1904 style rubber tired top buggy, as described in our Big Free Illustrated Buggy Catalogue.

$4.20 for our latest 1904 single buggy harness, as described in our Big Free Harness Catalogue **Don't Buy a Harness until you get our 1904 CATALOGUE.**

$14.50 for our latest 1904 double carriage harness, COMPLETE WITH COLLARS, 1⅛ Double and Stitched Traces, Over or Side Check, ⅝in. cheeks, as described in our Big Free Harness Catalog.

$22.90 for our 1904 style top buggy, as described in our Big Free Buggy Catalogue. Best value ever offered in a top buggy by a reliable house.

$53.90 for our latest 1904 style extension top surrey, complete with Top, Fenders and Lamps, as described in our Big Free Buggy Catalogue. Cheapest price ever quoted for a surrey.

$42.95 for our latest 1904 style ladies phaeton, as described in our Big Freo Buggy Catalogue. A great offer by a reliable house.

$15.75 for our 1904 heavy double harness, complete with Collars, as described in our Big Free Harness Catalogue. Better grades at equally low prices.

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Send us a postal for our **Big FREE 1904 Buggy and Harness Catalog**, fully describing all these vehicles, and our full line 1904 styles; also our Great Free Book **explaining how Co-operation reduces the price of everything.** Don't buy a Buggy or Harness until you get our great **Free** Illustrated Books. Freight rates guaranteed: money refunded if goods are not perfectly satisfactory. **GOODS SHIPPED ON THIRTY DAYS FREE TRIAL.**

FIRST NATIONAL CO-OPERATIVE SOCIETY, Dept. 345J, Cash Buyers Bldg., Chicago, Ill.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin=the=Queen=Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long=tongued Red=Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

We have files of unsolicited testimonials, but space forbids giving any here.

We employ 400 swarms in queen-rearing, the business is a specialty with us. We expect to keep 600 to 1200 queens on hand. Early in the spring, when the weather is cool queens will be shipped form the South. Parkertown, O., was our postoffice, but we have changed to Bellevue which has 13 mails each way daily. (No more of our queens will be jerked from a crane.) Our new circular now ready to mail.

ADDRESS ALL ORDERS TO

Price of Queens Before July First.

	1	6	12
Select	$1 00	$5 00	$9 00
Tested	1 50	8 00	15 00
Select Tested	2 00	10 00	18 00
Breeders	4 00		
Straight Five-band Breeders	6 00		
Palestine Queens	2 00	10 00	18 00
Two-comb Nuclei, no queen	2 50	14 00	25 10
Full Colony on eight frames	6 00	30 00	
Four fr's brood, 4 fr's fdn	5 00	25 00	

Special low price on Queens and Nuclei in 50 and 100 Lots.

Quirin=the=Queen=Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200

Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1.50; select tested $2.50; breeders $4.00 to $7.00.

Illustrated price list free for the asking.

W. O. VICTOR,

Queen Specialist. Wharton, Tex.

Choice Queens for 1904.

We are again offering queens of the best stock obtainable. All breeding-queens are selected, first, for superior honey production, and pleased customers are constantly sending in reports like the following:

Georgiana, Fla., Jan. 29, 1904.

The untested queen I got of you last March was a dandy. I raised about all my queens from her, and they are all far ahead of the common run.

Leland Baldwin.

Toronto Can., April 8, 1903.

I am well pleased with your stock, my ordering again is proof of their qualities. They proved gentle and were good workers. Hoping that you can fill my order, I am yours truly, Thos. Aikins.

Untested queens of Golden or Leather Italians, or Carniolans, warranted pure, $1.00 each, $9.00 per dozen. Tested, $1.25 each, $12 00 per dozen.

GEORGE J. VANDE VORD, Daytona, Fla.

HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1904. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, $1.25; five for $5 00. Breeders of either race, $3.00 each.

W. H. Laws, Beeville, Texas.

I will sell in May, 100 or 200 nuclei, three or four frame, with tested, or untested queens, or without queens, at prices purchaser can afford to pay.

B. F. Averill, Howardsville, Va.

CARNIOLANS AND ITALIANS.

Untested Queen $1.00; Six for $5.00; Twelve for $9.00. Tested $1.50. Best Breeder $3.00 Imported $5.00.

Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

F. A. LOCKHART & CO.,
Caldwell, - New York.

Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years. We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness*.

Italians.

Gentle, prolific, swarm very little, hustlers to work, and a red-clover strain.

QUEENS! ATTENTION! QUEENS!

During 1904 we will raise and offer you our best queens. Untested, $1.00 each, $5.00 for 6; $9.00 for 12. Tested queens, $1.50 each; best breeders, $5.00 each. One, two, and three frame nuclei a specialty. Full colonies, and bees by the car-load. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy-Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18, Beeville, Tex.**

Tennessee Queens.

Daughters of select imported Italians, select long-tongue (Moore's), and select golden, bred 3¼ miles apart, and mated to select drones. No impure bees within three and but few within five miles. No disease; 31 years' experience. All mismated queens replaced free. Circular free. Safe arrival guaranteed.

John M. Davis, Spring Hill, Tenn.

	Price before July 1st			After July 1st.		
	1	6	12	1	6	12
Untested	$ 75	4 00	7 50	$ 60	3 25	6 00
Select	1 00	5 00	9 00	75	4 25	8 00
Tested	1 50	8 00	15 00	1 25	6 50	12 00
Select tested	2 00	10 00	18 00	1 50	8 00	15 00

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

OUR SPECIALTIES

Cary Simplicity Hives and Supers, Root and Danz. Hive and Supers, Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season. 32-page Catalog Free

W. W. CARY & SON, Lyonsville, Mass.

Doolittle Says:

"Be very choice of this Breeder; if ever a Queen was worth $100, she is." Then we have Breeders from our strain that gave the big yields in '94, and which some of the largest bee-keepers in Cuba say can't be beat. They swarm but little and are **honey-getters.** We are breeding for **honey-gatherers** more than color. We cull our cells and queens, and **warrant** queens purely mated. Prices: Select untested, $1.00; select, $1.25 tested, $1.50; select, $2 00, breeders, $3.00, $4 00, and $5 00. Circulars free.

J. B. CASE, Port Orange, Florida.

Leather Colored Italians For Sale!

Strain took first premium Minnesota State Fair, 1901 and 1902. Ready May 1st. Eight or nine frame Langstroth hives, $5.00; ten frame, $6.00 each, f. o. b. Milaca.

W. R. ANSELL, Mille Lacs Apiaries,
MILACA, MINN.

Queens for Sale

BEST Golden and Leather Colored Italian Queens. Untested, 75c each; tested, $1 50. Holyland Queens, best for Southwest, $1 00 for warranted; $1 50 tested. Breeders, $3 00 to $5 00 each.

-Slone Bee Company,-
Slone, La.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Full colonies of bees for spring delivery. WM. A. SELSER, 10 Vine St., Philadelphia, Pa.

WANTED.— Bees. State quantity, lowest cash price, etc. F. H. FARMER, 182 Friend St., Boston, Mass.

WANTED.—To exchange modern firearms for incubators. Address
216 Court Street, Reading, Pa.

WANTED. — Wax for White Wyandotte and Leghorn eggs, and 6-inch foundation mill.
Box 37, Altamont, N. Y.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange 60 lb cans for honey, cash, or offers. No. 1 at 50 cts. per case; No. 2 at 40 cts.
G. L. BUCHANAN, Holliday's Cove, W. Va.

WANTED.– One hundred barrels of good horseradish. State price, quality, and nearest railway station. M. H. TWEED, 1125 Penn Ave., Pittsburg, Pa.

WANTED.—To exchange for a Mann bone-cutter, a foundation-mill and wax-dipping outfit as good as new, or will sell. G. R. FENN, Washington, Conn.

WANTED.—Full colonies of bees or two-frame nuclei with Italian queens on Simplicity frames, delivered April or May. H. P. FAUCETT,
Brandywine Summit, Del. Co., Pa.

WANTED.—To exchange for offers, a 6-horse engine, 10-horse boiler, 100-gallon copper kettle; saw-mandrel; 2 circular saws; 6-in. foundation-mill etc.
CHAS. H. THIES, Chester, Ill.

WANTED.—Bees in Dovetailed or Langstroth hives, full colonies in the immediate vicinity of Chicago. Write promptly, stating number of colonies offered, condition, price at which they will be delivered in Chicago, etc. THE A. I. ROOT CO., Medina, Ohio.

Help Wanted.

WANTED.—Bee-man to run 200 colonies on shares or for wages. Would be in sole charge.
W. R. ANSELL, Mille Lacs Apiaries, Milaca, Minn.

WANTED.—Experienced man to work and take charge of bees from about April 15 to Oct. 1. Address, with references, DR. GEO. D. MITCHELL & Co.,
340 Fourth St., Ogden, Utah.

WANTED.—A hustling helper in the apiary; one with some experience preferred to work for one having thirty years' experience as a specialist in many localities. Also, No. 1 white-clover honey in light weights, 12 to 14 ozs. B WALKER,
3000 Mich. Ave., Chicago, Ill.

Situations Wanted.

WANTED.—Situation with an up-to-date queen-breeder, east of the Miss. River, to learn the business. I have experience with bees (queen-rearing excepted) in both the East and West. Correspondence solicited. Address QUEEN BREEDER,
Care The A. I. Root Co., Medina, Ohio.

WANTED.—A position as book-keeper. Correspondence solicited. GERNAL B. SLAWSON,
Greenville, Mich.

WANTED.—Situation by an experienced bee-man able to take charge—either salary or shares. Correspondence solicited. Address
GEO. HERRICK, 12,110 Parnell Ave., Chicago, Ill.

Addresses Wanted.

WANTED.—Your name and address, for circular of bee-veils, veil materials, bee-gloves, and queen-cages. ARTHUR RATTRAY, Almont, Mich.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—Black and hybrid queens, 30 cts. each.
E. A. SIMMONS, Fort Deposit, Ala.

FOR SALE.--20 Hybrid queens at 50 cts. each.
W. A. SANDERS, R. F. D. No. 2, Elberton, Ga.

FOR SALE.—A limited amount of ginseng sets.
C. G. MARSH, Kirkwood, Broome Co., N. Y.

FOR SALE.—Red Clover and Italian Queens. Send for circular. G. ROUTZAHN, Biglerville, Pa.

FOR SALE.—300 colonies bees, good house and seven acres alfalfa. W. C. GATHRIGHT, Las Cruces, N. M.

FOR SALE — An apiary running for extracted honey. For particulars address
J. E LARRONDO, Sagua la Grande, Cuba.

FOR SALE.—White Leghorns, extra laying strain, cockrels and hens; eggs, $1.50. Reference, bank.
P. HOSTETLER, East Lynne, Mo.

FOR SALE. – 90 colonies bees, in good condition. 1000 extracting-combs. Must go quick owing to death of owner. A bargain. Address MRS. JAS. RALSTON.
Vinton, Ia.

FOR SALE.—57 New AE5 8 fr. Root's Dovetailed hives in flat for $55.00, or 10 for $10; also 10 new 2S 8-frame supers in flat for $3.50.
R. S. CHAPIN, Marion, Mich.

FOR SALE.—5000 L. extracting combs, in first-class condition, at 10 c each. Also 200 8-frame painted bodies at 25c.
H. & W. J. MANLEY, Sanilac Center, Mich.

FOR SALE.—Leather-colored Italian bees, with a tested queen in each colony, at $6.00 per colony. Good strong swarms. In lots of ten, $5.00 each. No disease. F. A. GRAY, Redwood Falls, Minn.

CLUBBING OFFERS.— Modern Farmer, Western Fruit Grower, Vick's Family Magazine or Poultry Gazette, and GLEANINGS, all for $1.00. First three 50 cents. Write for others. Modern Farmer, St. Joseph, Mo.

FOR SALE.—Apiarian outfit of small house and acre of land with 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot. X Y Z, GLEANINGS.

FOR SALE — In Canada, fine garden property, three acres, 50 colonies bees and supplies; garden and carpenter tools, rigs, foot-power machinery, splendid house of 10 rooms, two wells, cistern, apples, pears, plums, grapes, small fruit, hedges, and ornamental trees. Near Woodstock. Particulars of F. EDEN.
Eastwood, Ont.

FOR SALE.—Single-comb White Leghorn eggs from extra laying strain, 15 $1.00 30, $1 75. 100. $4.00.
C. M. WOOLVER, Richfield Springs, N. Y.

FOR SALE.—8-frame 1½-story hives made of Michigan white pine. Root's frames inside. Five, $5.00; 10, $9.00. Nailed and painted, ready for bees, $1.50. Sections until April 1st at last year's prices. Send for list. W. D. SOPER, R. F. D. No. 3, Jackson, Mich.

FOR SALE.—My apiary outfit consisting of Dovetailed-hive bodies filled with frames of comb; honey and wax extractors, comb-buckets, and other fixtures. Will fill orders as received until sold. Saw-mill well located almost new. Also good farm well located. All for sale cheap. B. J. CROSS, Auburn, Alabama.

FOR SALE.—An apiary and farm, consisting of 120 acres good grazing land, and only fifteen minutes' walk from the city of Cardenas, and on the public road; having on said place 350 hives (American system), all necessary supplies to handle these, good house on grounds, numerous fruit-trees, plenty of shade for bees, thirty odd head of cattle raised on the place, among these six fine American milch cows (Holstein stock) selling nice little amount of milk daily, good-riding saddle-horse, ox wagon with fine yoke oxen in fine condition, two good water wells, large pine-apple grove now producing, and with capacity to plant, if required, 60 000 henequen plants. Sell for cash, or on time with satisfactory guarrantee. Address
AMERICAN BEE HIVE, P. O. Box 41, Cardenas, Cuba.

If a Heavy Horse

should run into Page 23-Bar Poultry Fence it would stop him, and not damage horse or fence.

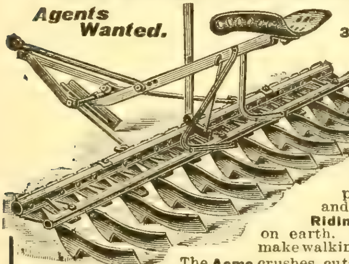
PAGE WOVEN WIRE FENCE CO., Adrian, Michigan.

ACME Pulverizing HARROW

Clod Crusher and Leveler

Agents Wanted.

Sizes 3 to 13½ Feet.



The best pulverizer and cheapest **Riding Harrow** on earth. We also make walking **Acmes.** The **Acme** crushes, cuts, pulverizes, turns and levels all soils for all purposes. Made of cast steel and wrought iron—**Indestructible.**

Sent on Trial To be returned at my expense if not satisfactory. Catalog and booklet "**An Ideal Harrow**" by Henry Stewart, mailed free, I deliver f.o.b. **New York, Chicago, Columbus, Louisville, Kansas City, Minneapolis, San Francisco.**

DUANE H. NASH, Sole Mfr., Millington, N. J.

Branch Houses: 110 Washington St., Chicago 240-244 7th Ave. South, Minneapolis. 1316 W. 8th Street, Kansas City. 215 E. Jefferson St., Louisville, Ky. Cor. Water and W. Gay Sts., Columbus, O

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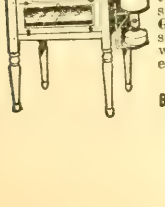


Great Scott Incubator case has no invisible cracks and porous seams to waste the precious heat that starts chick germs into life. The **Great Scott Incubator** is rigid; strong; easily regulated; causes no worry; gives high per cent hatches. Ask now for free catalogue.

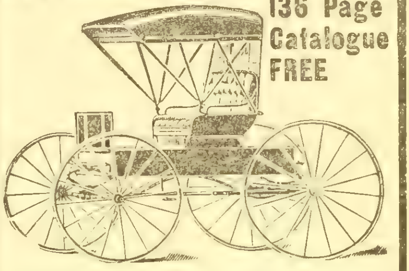
Scott Incubator Company,
Box 94 Indianapolis, Indiana

Our Best Advertisement

is a satisfied customer. If any neighbor or acquaintance of yours has had business dealings with us, has ever purchased a Split Hickory Vehicle or Harness, **ask him** if we did not fulfill every part of our agreement, and furnish him with a perfect and high grade vehicle at a very moderate and satisfactory price. **WE WANT YOU** to be our "advertisement" in your neighborhood. We want your neighbors to acknowledge that your buggy is the best, handsomest, most comfortable and the best bargain for the price they ever saw. They and you will agree on this fact when you receive a 1904

Split Hickory $50 Special TOP BUGGY

136 Page Catalogue FREE



The highest type of buggy possible to be built for the price and everyone accompanied by our **2 Year Absolute Guarantee** When the buggy arrives you are permitted to use it before you decide to keep it. We allow you

30 Days Free Trial

If it proves all you expect, you will wish to keep it. If it disappoints you in any particular, send it back to us at our expense and it shall cost you nothing. **Read the following partial description of the 1904 SPLIT HICKORY SPECIAL:** **Wheels**—Sarven patent, 38 and 42 inches high or higher if wanted. Tire ⅞ inch by ¼ inch thick, round edge. **Axles**—Long distance, dust proof with cemented axle beds. **Springs**—Oil tempered, graded and graduated, 3 and 4 leaf. Wooden spring bar furnished regularly. Bailey loop if preferred. **Upholstering**—Finest quality 16 oz. imported all wool broadcloth cushion and back. Spring cushion and solid panel spring back. **Top**—Genuine No 1 enameled leather quarters with heavy waterproof rubber roof and back curtain, lined and reinforced. **Painting**—Wheels, gear wood, body and all wood work carried 100 days in pure oil and lead. 16 coats of paint with the very highest grade of finishing varnish. Gear painted any color desired. Body plain black, with or without any striping.

This buggy is furnished complete with good, high padded patent leather dash, fine quality, full length carpet, side curtains, storm apron, quick shifting shaft couplings, full leathered shafts with 36 inch point leathers, special heel braces and corner braces.

Send for our **FREE** 136-page Catalogue of Split Hickory Vehicles and Harness.

NOTE—We manufacture a full line of high grade Harness, sold direct to the user at wholesale prices.

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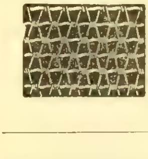

FENCE! *STRONGEST MADE.* Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO.
Box 101, Winchester, Indiana, U. S. A.

BEE-KEEPERS' SUPPLIES FOR KANSAS

Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*

A. W. SWAN & CO. Centralia, Kan.

Bee Sweet BEE-SUGAR CHEAP. **99½ Per cent PURE SUGAR.**

We have a quantity of lumpy granulated sugar, which it was our intention to melt over next season. If dry weather continues, and bee feeding becomes necessary, we believe it will pay you to use some of this to save your colonies. Price (subject to market change) $5 00 per hundred in 100-lb. bags, cash accompanying order.

Having seen a sample of this sugar, I recommend it as being healthier as well as cheaper to feed than honey, with no danger of foul brood from its use.
H. J. MERCER,
Sec'y Cal Nat Honey-Producers' Ass'n.

Los Alamitos Sugar Co.,
LOS ALAMITOS, CALIF.

Our Ten-Thousand Dollar
Bee keepers' supply manufacturing plant is ready for business. *Send for price list.*
MONDENG MFG. COMPANY,
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. . Bee-Keepers' Supplies . .
Berry-Boxes, Lock-Cornered and Mailing Boxes, Etc.,
—MANUFACTURED BY—
J. J. Bradner, Marion, Grant Co., Ind.
Orders filled promptly. Send for catalog.

Pacific Coast Buyers
are directed to the announcement that
SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California,

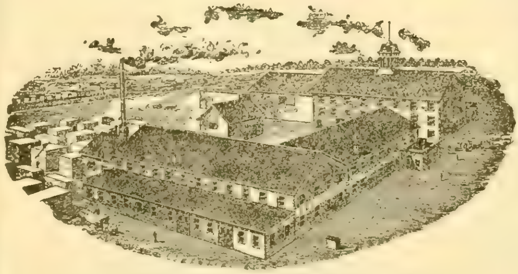
carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundation, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added. This saves buyers $1 50 per 100 pounds in freight, or 36c on each hive.

NOT IN THE TRUST.
The oldest bee-supply house in the East. Sells the BEST GOODS at former prices.
Send for Catalog.
J. H. M. COOK,
70 Cortlandt St., New York City.
Succeeded to the business of A. J. King, Dec. 14, 189 .

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞*WRITE AT ONCE FOR CATALOG.*

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Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
Chas. A. Meyers, Leipsic, Ohio.

More Room, More Stock

We now occupy the greatest floor space, and carry the largest stock of goods, that we ever did before. Our specialty is

Wholesale and Retail

Lewis' Goods

AT

Factory Prices.

Dovetailed hives, Wisconsin hives, Champion Chaff hives, Improved Langstroth Simplicity hives, and our new hive which we call the Acme hive. Thousands of pounds of comb foundation; millions of sections in about 30 different sizes and styles, and everything the bee-keeper needs.

Also a full line of Hoosier Incubators and Brooders.

Do not fail to find out all about

THE ACME HIVE.

Hundreds of them already sold, this year. Catalogs and plenty of information free.
Let us estimate on your order.

C. M. Scott & Co., 1004 E Washington St **Indianapolis, Ind.**

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,

Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Special Notices by A. I. Root.

WANTED — R. ABE NUSBAUM, TANEYTOWN, MD.

The above young man who advertised for a situation on page 98, Jan. 15, is wanted by his parents. He left home March 2. Address Mrs. D. C. Nusbaum, Taneytown, Md., Route 17.

A POSTAL-PARCEL SYSTEM FOR THE UNITED STATES.

A former postmaster-general, when asked about the chances of a postal-parcels system, said there were four insuperable obstacles to such a law, specifying by name four express companies. These companies had influence enough 30 years ago to direct any legislation they wanted, and they have the same influence to-day. And yet it costs just four times as much to send an eight-pound parcel by mail from Rochester to Buffalo as it would to send the same parcel from Edinburgh through the United States to Seattle. The Government has got to buy out the express companies.

And now arises the question, "Is the postal department of the United States run by these four express companies, or is it managed by the people and for the good of the public at large?"

ADDRESSING GOODS FOR SHIPMENT.

Every person who makes an order for any thing whatever should be especially careful to tell exactly how he wants his goods marked. It would save no end of bad feeling, and thousands of dollars in money, if every one who makes an order would say at the end of his letter: "Mark goods as follows;" and then put on a blank leaf of the letter, if there is one, or wherever there is plenty of room, just exactly what you want the shipping-clerk to put on top of your box. This is the more important, because so many of the friends have a freight depot with an address different from that of their postoffice. And even if there is not, there is scarcely a case where there is not some little kink about the way goods should be addressed that the writer knows more about than anybody else. The shipping-clerk, especially in the busy season, is rushed with business. It takes lots of time for him to turn the letter over and look at the beginning and end to find out where the writer lives and how the goods should be marked. I have talked so much about rubber stamps, giving your address just as you want it, that I thought I would not say any thing more about it here; but whatever you do, in making an order do let us know just what you want put on the box in the way of marking. If you do not know which will be cheapest for you — express, freight, or mail — we will gladly figure out, the best we can, which way will be best. But when you wish us to do this, give us the postoffice, express office, and freight office, especially if they happen to be different.

Just now I have a case before me where one of our friends in the South lost a whole season's work with his bees just because the goods were addressed exactly as he requested us to address his mail; and, if I am correct, he failed to say in his letter that his goods by freight were *not* to be marked the same way as letters went. He thinks "anybody of common sense ought to have known," under the circumstances, that his freight should not be addressed the same as the letter to his postoffice. He finally went to law in regard to it; but I think his own attorney told him the fault was his own. Now he threatens to publish us if we do not make good his loss. Now, whatever you do, tell us just how your box of stuff is to be marked.

Kind Words from our Customers.

In regard to hives made at a planing-mill (page 174), excuse me. I tried a few and had nothing to fit right or proper. Root's factory hive suits me best.

Mechanicsburg, Pa. E. P. SLARRY.

Your A B C of Bee Culture came a few weeks ago. It is the best bee-book I ever saw, and I am 64 years old, and have kept bees 45 years, and have a variety of bee-books. I have three of your A B C books, but the last one tops them all. H. F. CARPENTER.

East Los Angeles, Cal.

Since a neighboring bee-keeper called my attention to GLEANINGS with a sample copy I have taken a very deep interest in you all, and your success. I have kept a few bees for a good many years, and they have been a great help as well as a source of much enjoyment. We have a large family, and a good addition to our income has come from my bees, as well as the sweeter of the two luxuries that has come to us unchanged from the garden of Eden. Milk and honey are seldom absent from our table. Sometimes it has been hard work to keep up my subscription, and I have allowed it to run behind, and this year I thought to stop it as I do not enjoy it when I know it is not paid for as I do when it is *mine*. I generally look at the honey market, then at Straws, then turn to the Home talks, and they have so many times bolstered up my courage to pick up my burden of daily care and toil that I have felt as if I must some time tell you of it, and wish you God speed in your work. MRS. S. C. BROOKS.

Springcreek, Pa., Dec. 11.

The Breed that Lays is the Breed that Pays.

We make a specialty of SUPERIOR STOCK in Single-comb White Leghorn eggs for hatching.

$3.00 for 15,
$5.50 for 30,
$6.75 for 45,
$12 for 100.

The SNYDER BEE & HONEY CO.,
KINGSTOWN, - - NEW YORK.

When you need bees

and want your order filled by return mail, with the BEST queens that money can buy, we can serve you. Our queens are large, healthy, and prolific, from our reliable strain of three-band Italians, which all bee-keepers know to be the honey-gatherers. Our queens are ALL select. Choice tested queens $1.00 each; $12.00 per dozen; untested queens 75c each, $8.00 per dozen.

Send for price list.

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

QUEENS FOR 1904 Try my strain of three and five banded queens; untested, in April and May, $1.00 each; six for $5.00. Tested, in March and April, $1.25 each; six for $7.00. Orders by return mail. Am booking orders for early delivery. Sold 1800 last year. Can fill all orders, no matter how large.

DANIEL WURTH, Karnes City, Karnes Co., Texas.

Mention GLEANINGS in your order.

1904.

TRY J. W. TAYLOR'S record-breakers. They are three-banded leather-colored Italians. They have broken all records as honey gatherers. I have made a specialty of queen-breeding for ten years to secure the best bees, and now I have them.

Untested, 75 cts., or $8.00 a dozen; tested, $1.25 each; select tested, $1.75; each. Breeders, the best, $4.00 each.

I have three yards, and can fill all orders by return mail. I guarantee safe arrival and satisfaction. J. E. Atchley says the finest queen he ever owned he bought from me. Try one. **J. W. TAYLOR, Ozan, Ark.**

E. E. Lawrence (Box G 28), **Doniphan, Mo.**

Breeder of Fine Italian

QUEEN BEES. Send for Price List.
Local Agents for Root's Goods.

WANTED.—Twenty-five cents in stamps for 25 T. W. bee-brushes, by mail. Nothing better. They wear too. DAN WHITE, New London, Ohio.

SPECIAL ATTENTION

SHOULD NOW BE

GIVEN TO YOUR QUEENS.

YOUR SURPLUS HONEY

Will Depend on the Age and Quality of the Queen Mother.

KNOWING how much depends on having such queens as can be relied on to produce honey, we use extra care in the selection of our breeding stock. Selected queens are given one year's trial in our outyards, and those only are used for breeding that have shown a marked superiority in the yield of surplus honey. Tested and select tested queens can be had on receipt of order, and nuclei and untested queens by April 1.

We give special attention to the shipment of nuclei and our large apiaries enable us to supply them in any quantities promptly. One pleased customer says: "The bees came on the 27th, and they are simply elegant."

For prices of bees, queens, hives, and other supplies, send for our 64-page catalog.

J. M. JENKINS,

WETUMPKA, = ALABAMA.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

FIRE

Our entire stock was not destroyed

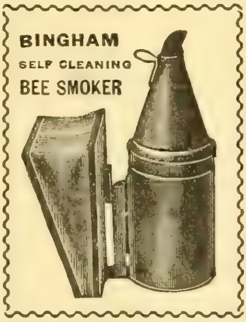
Warehouse escaped with full line of Bee-keepers' Supplies. Foundation-machinery now running full capacity, and back orders nearly filled. Send in your order and it will receive our prompt attention. :: :: :: ::

Retail and Wholesale.

Send at once for catalog with prices and discounts. Working wax into foundation for cash, a specialty. Ask for samples. *Beeswax always wanted, at highest prices.*

GUS DITMER, Augusta, Wisc.

FIRE



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Bingham Smokers are the originals, and have all the improvements, and have been the **Standard of Excellence** for 23 years. No wonder Bingham's four-inch Smoke-engine goes without puffing, and does not drop inky drops The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4 inch stove, per mail, $1.50; 3½ inch, $1.10; 3-inch, $1.00; 2½-inch, 90 cents; 2-inch, 65 cents.

T. F. Bingham, Farwell, Mich.

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ASSACHUSE
RICULTU

GLEANINGS IN BEE CULTURE

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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

ENTERED AT THE POSTOFFICE, AT MEDINA, OHIO, AS SECOND-CLASS MATTER.

FLOOD WATER

MARCH 26 to 31, we had from two to four feet of water in our warehouses. As a result, we will sell

Sections, $1.00 A THOUSAND

less than catalog prices. Foundation at 5 cents per pound less than listed prices. Special prices on 25 and 50 pound lots. These prices good only as long as the wet goods last.

WE HAVE PLENTY DRY GOODS IF YOU PREFER THEM. . . . .

Write for particulars.

LEWIS C. &
A. G. WOODMAN,
Grand Rapids, - Mich.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

Beeswax wanted.

George E. Hilton, Fremont, Mich.

Any man in Michigan that keeps bees – one swarm or five hundred, – is the man we are looking for.

Are you that man?

Our catalog for the asking.

M. H. Hunt & Son.
Bell Branch, Mich.

we sell the Danz Hive Send for booklet.

we sell Root's Goods in Michigan

C. H. W. Weber,

Headquarters for

Bee-Supplies

Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

* * *

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

I Shall be Pleased to Book Your Order for Queens; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above.

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white, and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

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Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—Honey is still coming in quite freely, and it is astonishing how much comb honey has been held back by the bee-keepers the past season. As to extracted honey, I believe all the country might have an entire failure of the crop and we should still have enough to go around held over, if indications are right. Fancy comb, 12@13; No. 1, 10@11; amber, 7@8; extracted white. 7; amber, 6. Beeswax, 31. We are producers of honey and do not handle on commission.

WM. A. SELSER,
April 21. 10 Vine Street, Philadelphia, Pa.

CHICAGO.—The market is heavily supplied with comb and extracted honey, neither of which is meeting with any demand; especially is this true of the comb. Prices are uncertain, as those having stock are anxious to dispose of it, therefore it is difficult to quote prices. The best grades of white comb bring 11@12; any thing off from choice to fancy is not wanted. Extracted white, according to quality, sells at 6@7; amber, 5@6. Beeswax, 30@32.

R. A. BURNETT & CO.,
April 7. 199 So. Water Street.

CINCINNATI.—The honey market continues to be dull; if any thing, the prices on comb honey are lower; concessions are made on bigger lots. I quote fancy white comb from 12½@14. Sales on extracted are made at the following prices: Amber in barrels, 5¼@5¾; in cans ½c more. Alfalfa, water-white, 6@6½ strictly white clover for extra fancy, 7½@8. Beeswax 30.

C. H. W. WEBER,
April 7. 2146 Central Ave., Cincinnati, Ohio.

ST. LOUIS.—Fancy comb honey would probably bring from 13@14 in our market at present, but there is none here of that description. A No. 1 is in fair demand at 12; No 1, at 10@11; No. 2, about 9; No. 3, from 7@8. We wish to state that considerable sugared honey is on this market, which is sold as low as 7 c. per pound. Extracted honey is quotable at 5@5½ in cans; 4@4½ in barrels. Dark, inferior goods will bring less.

R. HARTMANN & CO.,
April 8. St. Louis, Mo.

MILWAUKEE.—The market on honey has not changed very materially since our last report. The supply continues ample to supply the demand. The sales are slow, yet it is going out, but not as fast as we or shippers desire, and there may be a probability of some comb honey being carried beyond the spring season; Yet, as there is a good margin of time before another crop we are hoping it will all sell at fair values and we shall do all we can to get a fair value for all fancy stock. We quote: Fancy 1-lb sections, 12@13; A 1-lb. sections, 11@12½; inferior grades nominal—10@11. Extracted white in barrels, pails, cans, 6½@7. Beeswax, 28@30.

A. V. BISHOP & CO.,
March 23. Milwaukee, Wis.

KANSAS CITY.—There seems to be a little better demand for honey; the market is strong at $2.25 for fancy white comb; $2.15 for No. 1; and $2.00 per case for amber. We should not be surprised to see the market make quite a little advance from now on. Market on extracted, both in cans and barrels, remains very dull, and it takes extremely low prices to move same. Beeswax is in good demand at 30c.

C. C. CLEMONS & CO.,
April 8. Kansas City, Mo.

SAN FRANCISCO.—New comb per lb., white, 10@12; amber, 8@10. Extracted, water-white, 5½@6; light amber, 5@5½, dark amber, 4½@5. Beeswax, 28@30.

ERNEST B. SCHAEFFLE,
March 25. Murphys, Cal.

BOSTON.—There is nothing new to note, either regarding the condition of our honey market or prices. The demand is naturally not so heavy as it was, owing to the warmer weather and the near approach of the maple-sugar season. Prices remain as before.

BLAKE, SCOTT & LEE,
April 9. Boston, Mass.

TOLEDO.—Market on comb honey has been a little dull the past month. However, we wish to quote fancy white clover in a retail way at 15: No. 1 14, no demand for dark. Extracted in barrels brings 6½; amber, 5½; in cans, ½c more.

GRIGGS BROTHERS,
April 9. 214 Jackson Ave., Toledo, O.

TORONTO.—Comb honey, culls $1.25 per dozen; fair $1 50 No. 1. $1 75; extracted honey, slow; little demand, from 6 to 6½c per lb in wholesale lots. Demand in retail stores about as usual.

E. GRAINGER & CO.,
April 11. Toronto, Ont.

BUFFALO.—Comb honey is moving fairly well at steady prices. Fancy white comb, 12½@13; A No. 1 white comb, 12@12½; No. 1 white comb 11½@12; No. 2 white comb, 12½@13; No. 3 white comb, 10@10½ No. 1 dark white comb, 10@11; No 2 dark white comb, 9@10; white extracted, 6½@7; amber extracted, 6@6½; dark extracted, 5½@6. Beeswax 28@32.

W. C. TOWNSEND,
April 11. Buffalo, N. Y.

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51 WALNUT STREET. CINCINNATI, OHIO.

ALBANY.—Stock of honey here is working off better since weather became warmer, and looks more encouraging for selling out stock The past three cold months have been not only very discouraging, but almost all honey hardened in the comb and gives very poor satisfaction Prices are nominal now, from 8 to 13 cts for comb, according to condition of honey. Extracted slow at 6@6½ for buckwheat and 6½ for light grades.

MACDOUGAL & Co ,
March 23. Albany, N. Y.

DENVER.—There is sufficient stock in this market to meet the local demand No. 1 white, $2 50@2 75 per case of 24 sections; No. 2 white. $2.25@2 40 per case of 24 sections. White extracted, 7@7½. Clean yellow beeswax wanted at 28@30 cents per pound, according to color

THE COLO HONEY PRODUCERS' ASS'N.,
March 21. 1440 Market St., Denver, Colo.

COLUMBUS.—Receipts light, demand good at following prices: Fancy white, 14; No 1 white, 11@12 amber, 10@10½.

EVANS & TURNER,
April 9. Columbus, O.

FOR SALE.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps.

EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.

G. W. WILSON, R. R. No. 1, Viola, Wis.

FOR SALE.—I have a few more cases of comb honey (mostly buckwheat), which I will offer at a reduced price to close out.

N. L. STEVENS, R. D. 18, Moravia, N. Y.

FOR SALE.—Fancy basswood and white-clover honey; 60 lb cans. 8c; 2 cans or more, 7½c; bbls , 7½c.

E. R. PAHL & Co., 294 Broadway, Milwaukee, Wis.

WANTED.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us.

EVANS & TURNER,
Columbus, Ohio.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & Co., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity.

R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—*Extra* fancy comb honey, about 100 lbs. each in Danz and 4¼x4¼ sections, the latter in two-beeway and four-beeway sections.

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HILDRETH & SEGELKEN,
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West Galway, N. Y. T. I. DUGDALE, Sec'y.

The Connecticut Bee-keepers' Association will hold their spring meeting in the capitol, at Hartford, on April 28 1904, to begin at 10 A. M. All bee-keepers and their friends are cordially invited to attend. A question-box will be opened and several interesting essays presented. E. E. SMITH, Sec.

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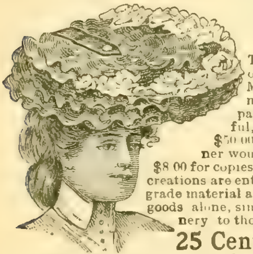

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No. 228—This hat is entirely hand-made on a silk wire frame. The crown is made of imported hair braid, with strap of velvet and gold buttons. The brim is faced with shirred silk chiffon, trimmed with gold braid and velvet ribbon. A touch of distinction is added by the beautiful arrangement of the wreath of imported sheer muslin roses around the crown, filling in the space between the crown and the edge of brim. Black only. City Milliners charge $6.00 for this hat—Our Price $1.95

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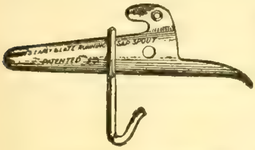

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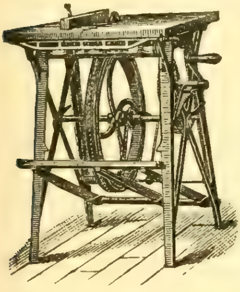

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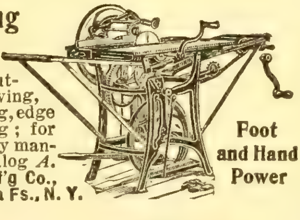

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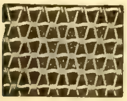

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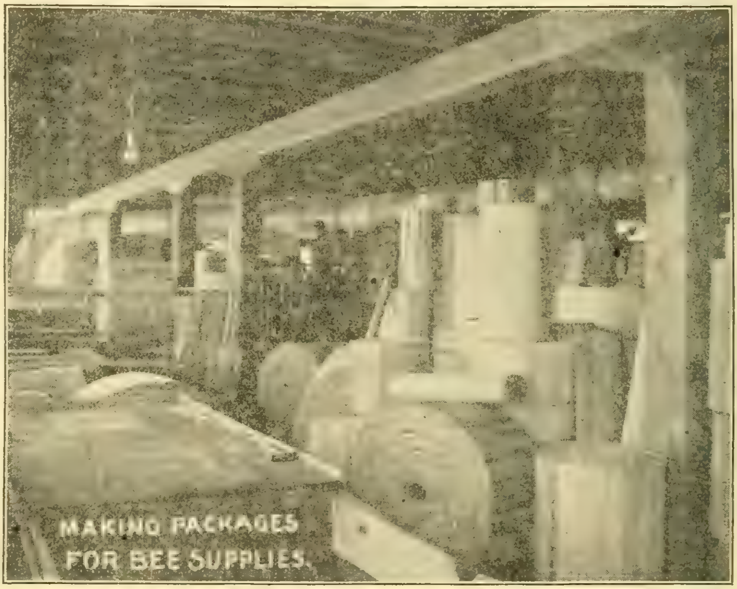

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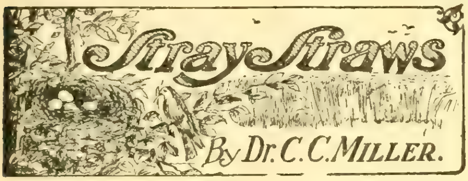


Stray Straws

By Dr. C. C. Miller.

THE QUESTION is asked whether queens can not be mated in greenhouses. I think it has been tried, but not successfully.

TRANSFERRING is so little practiced in this country that we're hardly up to date in it In England more of it is done, and nowadays they transfer 21 days after swarming.

IN CUTTING candied honey with a wire, I supposed a sawing motion was used, first one hand and then the other; but page 331 reads as if a square pull with both hands at a time were used. How is it? [A slow square steady pull, without any seesawing. —ED.]

G. M. DOOLITTLE tells some things that don't look very reasonable, in that article on p. 333. Any schoolboy can reason out that bees would do about the opposite of what he says. But, reasonable or unreasonable, bees in this locality do just as he says. Of the many good articles Doolittle has written, that's one of the best.

THERE'S ANOTHER man using cleats, Doolittle, p. 327, and they run full width of hive, so a rope can be used in carrying. My hives are generally carried by one man without any rope, and in that case the full cleat is away ahead of the little one. If you want comfort in carrying hives, order them with full cleats.

E. E. STARKEY, p. 338, thinks the ventilated cover better than one with dead-air space. He's right — for Florida, and perhaps for Tennessee. In colder localities the dead air is better, because warmer in times of year when it is very important to preserve all the heat possible; and at the same time the dead-air space is very much cooler under a hot sun than a single board.

"NO SEVERE LOSSES are reported in Illinois and Iowa," p. 329. The losses are probably there, but not reported. [That is true. But we can get some idea of where losses are heaviest by the way reports come in. As I pointed out in our last issue, it is the lake regions that have suffered the most. Illinois has a very small strip of lake border and Iowa none.—ED.]

EDITOR BASSLER says in *Deutsche Imker* that he has had in an issuing swarm the old queen accompanied by her royal daughters, and he wants to know what to call such a swarm. Is it a prime swarm when it has a virgin queen, or a second swarm with the old queen? That suggests another question: When the old queen is lost, and a swarm with a virgin issues eight days later, is that a prime or an after swarm?

UNCLE FRITZ wants to know what is meant in a Straw, page 115, where E. D. Townsend says if a few more colonies are added the result will be the same as stimulating and spreading brood. Suppose a man has 90 colonies, and by stimulating and spreading he can increase his crop one-ninth; if he had one-ninth more colonies — 100 in all — he would get the same amount of honey without any stimulating or spreading. See?

HERE'S SOMETHING from *Schweiz. Bztg.* that's new—at least to me: Honey is sealed with convex cappings; after about two weeks the cappings sink down to a level surface, and later still they sink down slightly hollowing; and not till then is the ripening completed. [This is rather interesting if true, and I believe it is. I have noticed that newly capped honey has a little different appearance from that which has stood for some time. I suggest that we make this a matter of observation this summer.—ED.]

H. J. FORST moved several colonies of bees a short distance in summer. He fastened them in the hive, handled them roughly in moving, allowing full light on the bees through glass laid on top (wouldn't wire cloth do as well?), opened them after two hours of confinement in their "light jail," blowing in smoke, and after a little flying about the old place the bees accepted the new situation. [Our own experience leads us to believe that Mr. Forst was mistaken; that many more bees returned than he supposed. Our bees have to be confined at least three days of twenty-four hours each before they will stay where they are put. We have tested this thing over and over again, hundreds of times, and it is our practice to shut the entrances up tight and keep them closed for at least three days. Of course, the beginner needs to understand that a weak colony or nucleus can be so treated without danger of smothering.—ED.]

HONEY CONSUMED in a year by a colony of bees, according to careful investigations at Swiss stations, as reported by H. Kramer, in *Schweiz. Bztg.*, varies greatly after the following table of pounds:

	Minimum.	Maximum.
October—January	4.4	11.
February—April	11.	33
May—July	19.8	39 6
August—September	6.6	13.2
Total	41.8	96 8

That would be about 70 pounds as the average annual consumption of a medium colony. I think Doolittle puts it at about 100, and Getaz at about 200. [This is an interesting set of figures. It certainly does seems much more reasonable than those given by Mr. Getaz, showing a consumption of 200 lbs. for one year. If a colony actually consumed that amount, and gave the bee-keeper only 50 lbs. surplus, it would look as if there were a big waste somewhere. This is an important question, and it has its practical side too. Perhaps some of our experiment stations can be induced to take it up. Any further information will be gladly received.—ED.]

ACCORDING to *Schles.-Holst. Bztg.*, the bees must bring in 25,000 loads of nectar to make a pound of honey. But big loads and little loads must make that vary greatly. [Prof. B. F. Koons, of the Agricultural College, Storrs, Ct , in 1895 conducted a series of experiments, weighing not only bees but their average loads. He weighed several hundred bees, and his figures stood about as follows: 10,000 bees *could* carry one pound of honey. This was the minimum number. But he found that more often it would take 45,000 bee-loads to make a pound. His average, therefore, was 20,000 in round numbers. These figures very closely tallied with weighings made by Prof. Lazenby, of the Ohio Agricultural College, and by Prof Gillette, of the Colorado Experiment Station. It should be said that both made their figures without the knowledge of what the other was doing, much less what had been reported by Prof. Koons. The fact that they all so nearly agree is somewhat remarkable, and proves, if it proves any thing, that they worked with wonderful precision.—ED.]

HANS had a colony of bees. Like the earnest bee-keeper he was, he went frequently in winter to see how they got along. One day they were making a good deal of noise. "Must be too cold with this miserable zero spell," said Hans. So he got rags and stopped entrance and cracks as nearly airtight as possible. A few days later he found them quite still. "Good thing I thought to shut 'em up warm," said Hans. "Now they're sleeping well." When spring came and flowers bloomed they were still sleeping.—*Bienen-Vater*. [While this seems like a good joke to the practical bee-keepers, and the result is just what we should have expected, yet there is many a beginner, just like our friend Hans, who has made the same fatal mistake. We have had reports of it in our back volumes. It is perfectly natural that one should plug a hive up to keep out the cold air. He reasons that the houses we live in have closed doors; that churches and auditoriums designed to receive hundreds and thousands of people are closed tight, and kept so for an hour or so; but he does not understand that the hive is probably hermetically sealed except at the entrance.—ED.]

M. DUCLOS tells in *Bulletin de la Meuse* that he fed a weak colony and started robbing. Notwithstanding narrowed entrance, only night brought a respite. Next day, when excitement was at its highest, he opened the entrance wide, and when the largest number of robbers were inside he fastened them in, giving plenty of air. After a week's imprisonment he opened the entrance. The robbers remained loyal to their new sovereign, all was lovely, and he had a strong colony. [This to me is a new kink, and I do not see any reason why it should not work exactly as here described. In referring the matter to my father he first said the same thing was mentioned in our A B C book. Although I have been over that volume dozens of times, and have rewritten large portions of it, I do not recall that the same thing ever appeared in it. A careful search does not reveal it, although there are similar methods, but not the identical plan here described. When I explained that, he still thought it was surely described in our back volumes years ago. But it is a good point, especially for queen-rearing yards.

J. F. McIntyre described in our A B C a robber trap that involves the same principle. When a colony is being robbed furiously he lifts the robbed hive off its stand and puts another hive just like it in its place. The entrance is provided with bee-escapes so that, when the robbers once go in they can not get out. They of course rush into the trap hive pell-mell; and when they are all trapped, quiet is restored. We know from experience that usually only one or two colonies are concerned in robbing, unless, perchance, there is general robbing throughout the yard and there is a general uproar. If there are not too many bees involved, a robber-trap will catch the whole of them, and all will be quiet.—ED.]

Pickings from Our Neighbors' Fields
By
"Stenog."

If any of the readers of this journal know of a friend who can make use of a bee journal printed in the Lettish (Livonian) language I shall be glad to get the address. We get a journal of that kind here, called *Mesilane.* We have received many new bee journals lately, and are trying to get a copy of all published. A large amount of literature has collected around the bee.

* * *

That well-known bee-writer, Harry Lathrop, of Monroe, Wis., not only dips his pen in the apicultural ink-bottle but in that of the muses as well. He has just published quite a number of his poems in book form. They are descriptive of Wisconsin scenery, and of life in that region. His friends will be well repaid by sending him 50 cents for a copy of the book, as Mr. Lathrop sketches right from nature. It is finely illustrated all through. The presswork is excellent.

* * *

A contributor to one of our Russian exchanges, after reading what Mr. Doolittle said in regard to combs never being too old to be of service for brood purposes, takes quite an opposite view. He found some brood comb 25 years old. The queen, in trying to lay in this, was unable to back in far enough to put an egg at the bottom of the cells, and so she laid them near the surface, on one side. E. R. R. doubts this — thinks the queen was defective.

* * *

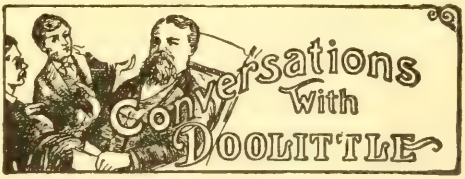
A Russian bee-keeper took a rather novel method to ascertain which of his queens would develop the hardiest strain of bees. He put two together, when one was immediately killed. The survivor was soon afterward pitted againtst another queen, which she dispatched with neatness. Five more were tried; and as she was victorious over all rivals she was selected as the mother of a new colony. Perhaps we shall hear some time what kind of bees she produced.

* * *

A writer in *Bienen Zuchter* introduces queens in this way; and in the multiplicity of ways some may find this a good one: When I receive a strange queen I take advantage of the first fine day, and at noon I open the hive which I wish to requeen. I take therefrom a frame of brood, no matter which, covered with bees, providing the queen is not found there. I place this in a little hive which I take to the cellar. It is needless to say that I close the hive as soon as the frame is taken out. About four or five o'clock in the afternoon I give a good dose of feed to my captives in the little hive, and then, about half an hour after, when they are well gorged with honey, I smoke them lightly and place my new queen on the frame. I afterward close the little hive, leaving the feeder in it. The next day, when the bees are well at work, I carry my little hive to the apiary, look for the queen of the hive from which I took the frame of brood, kill her, and smoke the colony moderately. Meanwhile I take out the frame on which was found the old queen, and put the frame of my little hive in the place of that. I then close the hive and the game is played.

* * *

A German exchange, *Praktischer Wegweiser*, gives an interesting account of bee-keeping in Siberia. The winter lasts seven months, beginning in September and ending in May, there being no fall and spring. The snow is often ten feet deep. The principal source of honey there is basswood, of which Siberia boasts 17 different kinds, blossoming at different times. The wood of it is used for all kinds of building purposes, even for making sheds for the purpose of protecting hives. Nearly all bee-keepers there are professionals, and they select in the forest, far from any town, a convenient place for winter quarters. The hives are nearly all American pattern, set around on four posts, provided with covers, and separated from each other in such a manner as to afford easy manipulation. The colonies are strong, about 15 lbs. each, only such being kept. Swarms or seconds are united to the number of five or seven, after having taken away their queens and drones. These are kept in a cellar for four or five days, otherwise they are apt to desert. To catch runaway swarms, hundreds of common hives are suspended on the trees. The bees do not go out between 11 o'clock and some time in the afternoon, on account of the oppressive heat. A good hive will furnish about 100 lbs. of honey which sells for about 25 cents per kilogram of 2 lbs. 3 ounces. There are some apiaries in Siberia that certainly have over 1000 hives each.



BEGINNING IN BEE-KEEPING.

"Is this Mr. Doolittle, the bee-man?"

"That is what some people call me."

"My name is Jackson; and I was told that, if I would come and see you, you would tell me how best to begin bee-keeping. I have read an old bee-book by a man named Quinby, and I have become nearly crazy over bees — at least, my wife puts it in that way."

"Quinby was a good writer on bees, and I sometimes think that his 'Mysteries of Bee keeping Explained' was about as good a book, from the practical side of the matter, as was ever written."

"Then you have the book?"

"Yes. That was the book that taught me my first lessons 35 years ago, and I studied the matter the book contained until I had it by heart like a nursery rhyme. How much did you think of investing in bees?"

"I told my wife that I thought I could spare $250 for that purpose. But she rather objects. Do you think that would be enough?"

"I put in only $35, and I would not consider it good policy for the one who knows nothing experimentally about bees to put in more than $40 to $50 in starting, including bees, hives, books, papers, and all."

"Well, I do not think my wife would see anything large in that; but that would not buy many colonies."

"No; neither do you wish to buy many colonies. If you do not buy more than from two to four colonies (and the latter should be the limit, in my opinion, for the one who has had no experience in the business), $50 will cover all necessary expenses."

"How about the hives?"

"If you are a good workman, and have the necessary tools, it might be well for you to get a sample to work from, and then make your own. You may not get them quite so smooth and nice to look at as those you would buy, but for all practical purposes in honey-production they will help you to just as many dollars and cents as would those with an extra-nice finish. I would not, however, advise you to try to get out your own sections."

"Why not these as well as the hives?"

"It is doubtful whether any one, no matter how good a workman, can get out sections by hand that will in any way compare with those now on the market, nor that would be suitable to sell to consumers; but in making the rest of what you will need, you will not only be self-supporting, but this part of it will put into you an enthusiasm which will tend much toward success."

"How would it do to get a foot power saw and make the sections that way?"

"It would not pay you. When I first began bee-keeping I was charged $25 a thousand for sections in the flat; and as I thought that a high figure I purchased machinery and manufactured sections for sale. The price soon went down to $20, then to $15, then to $10, then to $8, then to $6, at which time I said, 'others can have the trade; it will pay me better to work at something else.' But I had the machinery, and so continued to get out my own till the price fell to $3 50, when I concluded that I could not afford to run my own machinery, after paying the price for the lumber which I had to at retail, if I had any respect for the worth of my time and the use of the machinery."

"What! sections as cheap as that?"

"Yes; and they went still lower, so that any one by buying in 10,000 lots could procure them at $3 00 per thousand. But since then they have advanced somewhat, owing to the scarcity of lumber; but even now you can purchase the material for 1000 sections for less than the cost was when I quit manufacturing them for sale; and, what is more, the sections which we used to pay $25 a thousand for would in no way compare with the sections which I paid the A. I. Root Company $3 00 a thousand for a few years ago. In no other one thing has there been a greater improvement along the bee-keeping line than in sections since they first came into existence. Those $25 sections were simply sawed out, and the sawing done was of a rough order. Now the Root sections are all sandpapered till they are polished almost as smooth as glass and as true as a die."

"What hive would you start with?"

"That is quite a question. It is well that you make sure that you start with a really good hive. There are several of these before the public; but should you choose the Langstroth hive, you will make no mistake; for with cellar wintering, here at the North, there is probably nothing better."

"But you think it might be well to invest more largely than the $50 after a year or so, do you not?"

"Not unless the bees earn it for you. Make your bees and yourself self sustaining; and after the first start do not pay out more than what the *bees* bring you in, always remembering that, if you can not make your four colonies pay, you can not make 400 or 4000; then if you should happen to make a failure of the business you will have the consolation of knowing that you have lost but from $40 to $50, instead of $250 to $400, or perhaps as many thousand, as some have done. There seems to be a proneness to go into the bee business recklessly, ofttimes."

"I suppose it is on account of the bee-fever. My wife tells me I have it bad; and had I not come to see you I probably should have put as much as $200 into it. How about the work part to it? I am told that there is very little to be done."

"The day is past with most people in believing the old adage that bees work for nothing and board themselves, and I do not think you believe so. If any person thinks he will realize a large income from his bees, and never look after their condition further than hiving swarms and putting on sections he will find he is making a mistake. Men do not treat their other stock that way, but care for it regularly, and the bees need care, just when they do need it, just as much as any thing else."

"What are some of the needs of the bees?"

"See your bees often, is a good thing to paste in your hat, so that you may know that they are suffering for nothing. While they are in the cellar, keep the temperature of that cellar between 43 to 50 degrees above zero, if it is possible to do so. Then do not let the dead bees accumulate on the floor and mold there, thus making the air unfit for any animal life. And if you have any outdoors, and the mercury rises to 45 to 50 degrees in the shade, with the sun shining brightly, and the atmosphere still, let them have a cleansing flight, no matter if the ground is covered with snow. Bees can get off the snow just as well as from any other place if the air and temperature are right. See that the colonies have sufficient stores for winter in early fall, so there is no danger from their starving; and if to be wintered out, pack them and fix for winter while the weather is still mild. Put on your sections and take them off at the right time, and always crate your honey before you sell it, as this will give it a much nicer appearance. Oh! there is so much to do that, were I to tell you all at once, you would be discouraged and forget half I tell you."

"Well, but how am I to learn?"

"When you get your bees, take your Quinby book and go right out with the bees and put it in practice, and also whatever you read in the bee-paper you take, if it seems good to you; that is what you want to prove by the bees. In short, 'live with them' till you get these things learned (what you read) or proven, and that will give you the education you need. But I must leave now, as I have an appointment to meet."

Editorial
By E.R. Root.

THE WOULD-BE INVENTORS OF BEEDOM.

In the *American Bee Journal* for Feb. 11 appears an editorial with the above heading. As the experience of the editor of that journal is almost exactly the same as ours, I reproduce here the first paragraph:

> A leading writer of sacred writ once said. "Of the making of books there is no end." Almost the same thing can be said of the making of new hives It is getting to be almost a fad in these days for certain bee-keepers to have a hive of their own. Of course, each new hive gotten up (by them) is far superior to any other, no matter whether it is half so good as some that have been thoroughly tried by the majority of bee-keepers! The strange part of it all is that the would be inventors of these new fads in hives are so queer as to think that bee-papers ought to devote half of their space to pushing the sale of these new creations. Yes, certain of them have gone so far as to order their bee-papers discontinued because the editors did not see it their duty to insist upon the bee-keeping public using their new hives. No doubt the discontinuers thought they would kill the bee papers if they stopped subscribing for them. But they might be surprised if they knew the papers *they* discontinued were having more readers all the time

A short time ago one of our customers as much as told us that a certain hive was very much better than any thing else on the market, and that it would eventually run every thing else out of the country. He went on to say that the leaders, indicating the editors and supply-manufacturers, did not want to recognize its merits. For these and other reasons he withdrew his patronage from our journal, supposing that that act of his would bring us to our senses. Queer world, this! or, rather, there are some queer people in it.

BEE-PARALYSIS HEREDITARY; SULPHUR CURE A SUCCESS.

Mr. O. O. Poppleton, of Stuart, Fla., who gave to the bee-keeping world the first successful method of curing bee-paralysis by means of powdered sulphur, has probably had as good an opportunity for studying this peculiar disease, which had hitherto baffled all efforts at cure, as any other man in the United States. In the March issue of the *American Bee-keeper* he confirms an opinion that has been expressed many a time, that bee paralysis is hereditary, or, rather, he goes on to state that the "disease seems to be much more prevalent in certain strains or families of bees. At least four times in the last ten years I have had to destroy utterly certain queens and all their daughters, nearly all cases in my apiary being confined to these particular bees. Certain queens seem to transmit the germs of the disease through queen daughters to their progeny."

He observes, further, that "colonies which have had the disease one season, but recovered without treatment of any kind, are much more liable to have the disease next season." And, again, "It is the old bees, the field workers, that die."

It may be interesting to mention at this time that others have followed Mr. Poppleton's method of treatment with entire success, which is nothing more nor less than sprinkling the infected combs with powdered sulphur, then repeating the treatment a week or so later, and again if necessary.

A DAMAGE BEE-SUIT IN WHICH THE N. B. K. A. COMES OUT VICTORIOUS.

In our issue for Nov 1, 1903, page 916, we gave the details of a peculiar (not to say ridiculous) suit in which a member of the National Association, Mr. J. W. Pierson, also Secretary of the New York State Association of Bee-keepers' Societies, was made the defendant in a case in which it was alleged that a horse belonging to the plaintiff was stung by the defendant's bees. It is said that the plaintiff would have never begun the action but for a certain attorney, and there are plenty of them ready to appeal to prejudice. Some very queer statements were made in the petition. The plaintiff (or, rather, his attorney) averred that his horse was in the clover-field pasturing; that the bees were working heavily on the clover; that subsequently the horse was found fast in a barbed-wire fence, its nose and lips swollen, and that "it had crazy spells." A veterinary was called, and he at first called it a case of lockjaw; but, possibly after he had been "posted" by the aforesaid attorney, he reversed the opinion, and called it a case of bee-sting poison. Other veterinaries were called by Mr. Pierson, but they did not agree that the symptoms indicated stinging. Among other foolish assertions, the petition set forth that the defendant well knew that the bees were "ferocious by nature;" "liable to sting animals and mankind;" that he had no right to keep them, and that he should have kept them in their hives, etc. Well, how the Association and Mr. Pierson came out victorious is explained in the following, just received from Mr. Pierson himself:

> The plaintiff, Frank Lockwood, a resident of Cayuga Co., N. Y., sued the defendant, J. W. Pierson, a neighboring bee-keeper and member of the National Bee-keepers' Association, in justice' court, for the value of a horse which, he alleged, "was stung and so injured by the defendant's bees, on or about the 20th of June, 1903, that she died." Issue was joined, and the defense, aided by the N. B. K. A., successfully defended the case. The plaintiff, Lockwood, after one trial in justice's court, asked for a discontinuance, which was granted upon his payment of such costs as were legally chargeable to him.

ANOTHER VICTORY FOR THE ASSOCIATION.

Just as we go to press the following has come to hand:

> MILLSBORO, DEL., April 13, '04.
>
> GENTLEMEN:—The suit of Wimbrow Bros. against Francis Dryden, bee-keeper, for the loss of a pair of mules stung to death summer before last, was decided in court yesterday by non-suit. He, Dryden, had not been notified by town board to remove them was his defense, and the team was driven into a field and left standing within a few feet of them.
>
> G. L. ELLIS.

POSSIBILITIES OF BEE-KEEPING IN TEXAS, THAT PARADISE FOR BEES.

OUR readers will remember that, some time ago, after visiting Uvalde Co., Texas, I referred to it as being a paradise for bee-keepers. At the time some questioned the statement, thinking I had overdrawn it. In "Ten Texas Topics" is an article by Mr. Udo Toepperwein, in which he quotes from one of the prominent honey-producers of his State. From two paragraphs of it I make the following extract:

> Uvalde is now shipping honey by the train-load, and the bee-keepers there, as well as in a number of neighboring counties, are actually getting rich at the business. It will not be many years before all the hollow trees are cut, the caves robbed, and the bees put into up-to-date hives; and then we may expect the producing of honey to be one of our chief industries. It may surprise some to know that even now there are bee-keepers in Texas who own over a thousand colonies of bees. Within a few years such a number will not be an unusual thing.
>
> As those who are informed know, according to the last census Texas is the leading State in the production of honey and the value of apiarian products. In 1899 there was produced in Texas 4,780,254 pounds of honey and 159,690 pounds of beeswax, valued at $468,527.60. We produce nearly a million pounds more of honey than any other State; and bee-keepers from other sections, who are aware of our advantages, are locating every year in our midst. In nearly every portion of Texas bee keeping pays; but it finds its best place in South and Southwest Texas, where the flora is so extensive and so well adapted to the production of honey. Texas has never known an entire failure in the honey crop, which is something that can not be said of any other State. For these reasons I believe South and Southwest Texas to be the best bee country in the world, and a section in which entire confidence can be placed in the production of a honey crop every year, thus making it a staple and certain source of revenue to those engaged in it. As yet there are millions of acres in this section where no bee has ever yet made its appearance, and the opportunities and prospects for development are unlimited.

So far as I am acquainted with the field referred to, the statements made are not far from the truth. One of my Texas friends says it is literally true — every word of it.

Uvalde Co. has now all the bee-keepers and bees it can support. But there are other counties, sparsely settled, that have conditions very similar to those afforded by Uvalde, and these would support bees and bee-keepers. The only question that remains is whether the tenderfoot would care to leave home and friends and go into a sparsely settled field that seems almost like a desert, even though it may be a paradise for bees. The scrubby plants or trees of the catclaw, mesquite, and guajilla do not look as if they would yield any honey; but the fact that Uvalde Co. is shipping out honey by the train-load is significant.

WINTER LOSSES UP TO DATE.

WINTER losses throughout the northern portion of the country are about the same as reported in our last. Michigan and New York, as before, lead off with the heaviest mortalities. Reports are beginning to come in from Canada, showing losses both in Ontario and Quebec — much heavier than usual. Some of the States along the Atlantic coast are reporting anywhere from 30 to 90 per cent of the bees dead. The losses still seem to be confined mainly to bees wintered outdoors, and to those bee-keepers who have had a short experience.

THE OHIO FOUL-BROOD BILL.

THE Herrick foul-brood bill, as amended, passed the Ohio Senate last Tuesday, April 12. It was discovered, while in the Senate committee, as it came from the House, that there was one little feature in it that was unconstitutional. This was amended, and was then passed by the Senate, and now goes back to the House for concurrence, where it will undoubtedly pass.

A. I. Root was present in the Senate when the bill came up for consideration. One Senator seemed to think it was a piece of class legislation that would benefit only a very few bee-keepers, and endeavored to convey the impression that it should give place to more important measures that were up for consideration. Another Senator, and he was backed by many others, said he had received more letters and telegrams concerning this bill than he had for any other measure that was up for consideration in the Senate, and he made a strong plea for the bill. This only goes to show that GLEANINGS readers carried out my request to write to their Senators in a way that made itself *felt tremendously*. Further announcements will be given later.

SULPHURIC ACID CAN NOT BE ELIMINATED FROM COMMERCIAL GLUCOSE OR THE SO-CALLED CORN SYRUP, SAID TO BE "BETTER THAN HONEY."

IN our last issue reference was made to the statement, now going the rounds of the press, that John D. Rockefeller would give half a million of dollars for a process by which all the sulphuric acid could be removed from corn syrup or glucose. At the National Bee-keepers' convention which met in Chicago in August, 1900, a paper was read by Mr. Thos. W. Cowan, editor of the *British Bee Journal*, one of the leading scientists in all beedom, on the general subject of the chemistry of honey and how to detect its adulteration. From this paper I make two or three extracts that go to show *why* Mr. Rockefeller makes his offer so very large. The following are the extracts:

> Starch or corn syrup, known commercially as glucose, differs in almost every respect from honey. It throws down abundant precipitates with lead and barium solutions, and often with alcohol. It does not ferment completely, but leaves about one-fifth of its weight as unfermentable gummy residue, and examined by the polariscope, it turns the ray of light powerfully to the right.
>
> Glucose is prepared on a large scale from corn starch. The transformation is usually effected by boiling with dilute sulphuric acid. The excess of acid is removed by treating the solutions with chalk, and filtering The filtered solutions are evaporated to a syrupy consistency, and sent into the market under the names of glucose, corn syrup; or to dryness, the solid product being known in commerce as grape sugar.
>
> If in the treatment of starch with sulphuric acid the transformation is not complete (and this is usually the case), the product is a mixture of dextrose, maltose, and dextrine. It is generally quite easy to recognize the acid which has been used to convert starch into glucose. In the laboratory it is quite possible to make pure glucose, and remove every trace of acid; but commercially it is practically impossible by subsequent precipitation of the product to get rid of this acid, and, as a consequence, it appears in the honey which is adulterated with it; and by adding to a clear solution of honey containing such glucose a solution of barium chloride, a white turbidity at once makes its appearance, varying in density with the quality of the corn syrup present and the state of its purity.

Note that Mr. Cowan says that, "in the treatment of starch with sulphuric acid, the transformation is not complete; . . that it is generally quite easy to recognize the acid which has been used to convert starch into glucose." And, again, "In the laboratory it is quite possible to make pure glucose, and remove *every trace of acid; but commercially it is practically impossible*." Italics are mine. Thousands of dollars have been expended in the attempt to remove every trace of the acid from the commercial product, but so far without success.

Note again that Mr. Cowan, despite the statement of the venders of these cheap corn syrups, to the effect that they can not be distinguished from honey, says: "Corn syrup, known commercially as glucose, *differs in almost every respect from honey*" — italics mine again. Yet I suppose there will be millions of copies of advertisements in all the leading papers, that will tell you a certain brand of corn syrup "is honey," and "is better than honey" — two statements that are somewhat contradictory to say the least. How can any thing be better than itself? The second quotation is a plain acknowledgment that the stuff *is not honey*.

It will not be long before the public will learn this brassy taste, and will associate it with sulphuric acid that is found to do damage to the stomachs of the ignorant and unsuspecting, to say nothing of the innocent children who are given the stuff because it is "cheaper than honey." Verily, has it come to pass that the "almighty dollar" must come between us and our children?

If Mr. Rockefeller is offering half a million dollars for a process by which he can eliminate the sulphuric acid from his corn syrup, we hope the papers of the country will herald the fact from New York to San Francisco, and from New Orleans to Portland. Let the dear people understand just what they are getting; then if they buy it with a full knowledge of what is in the stuff they will have no one to blame but themselves if they have "disordered stomachs." But methinks they have too much respect for their health. A wise man says you can fool a part of the people all the time, but not all the people all the time.

We do not need to worry about those big flaming advertisements of corn syrups "better than honey." The people will not be fooled long.

KEEP MORE BEES — IS THE ADVICE GOOD?

IN the *American Bee Journal* for March 31 appears an article from our friend G. M. Doolittle on this subject. Among other things he says:

> Not long ago I saw a statement in print from quite a noted bee keeper, that it took 200 lbs. of honey to carry a colony of bees through a single year. This is a greater consumption of stores than I had believed possible. My estimate has been that 100 lbs. is sufficient for all the needs of any single colony during a year, and so to be on the conservative side I will call my estimate, or half of what the writer gave, as the amount needed to keep one colony of bees one year, as the right amount. Then the question which comes to us is this Which is the cheaper, a little extra manipulation, or the extra colonies, hives, etc., and the *honey* that they consume?
>
> Suppose that 100 colonies produce an average yield of 50 pounds each of surplus honey for their keeper, and by so doing secure all the nectar in a given field, year by year This will make 5000 pounds of surplus as the apiarist's share of the field, while each of the 100 colonies will use 100 pounds each, or 10,000 pounds as a whole, as their share to carry them through the year. Thus we fail to secure to ourselves only a one-third share of the honey from our field, by employing an extra number of colonies
>
> On the other hand, if we employ the management or economy plan, which many of our best farmers do, and the plan adopted almost universally by our English friends—that of securing the same amount of produce off of *one* acre of land that many of our Americans do from three or four acres—we shall find our question stated thus: 15 000 pounds is the product of our field; 50 colonies are all that are needed with good management to secure this whole yield. Then 50 colonies must use 5000 pounds of this for their support, thus leaving 10 000 pounds for the manager. None but the most prejudiced can help seeing from this that the manager gets 5000 pounds of honey for his manipulation and uses little if any more time than he would use on the 100 without manipulation; hence from the standpoint of overstocking a field, the *management plan* is 5000 pounds ahead of the other plan of keeping an extra number of colonies, and proves that Mr. Townsend's doctrine is not correct.

If I mistake not, Mr. Hutchinson, of the *Review*, has been a most strenuous advocate of keeping "more bees;" but so far as I have read his editorials he does not advise that in doing so a locality should be overcrowded to the extent that the average per colony should be cut down, but that the additional bees should be scattered in various outyards, each having no more colonies than the locality will support. On the other hand, there is just a little danger that some of our friends may go too deeply into bee-keeping, and it is perhaps wise to call a halt ere some wade into water beyond their depth. Many a person can handle a few chickens, and get good results; but when he runs the number up into the hundreds he meets with failure and disaster. Some of our friends have done remarkably well with a few colonies; but when they have attempted to double or treble the number they entered into a business proposition that proved to be rather too much for them.

Many years ago a neighbor of ours cleared a thousand dollars from one acre of onions. It made him wild. He bought ten more acres of the same kind of onion land, going into debt for it, and expected to clear the following year $10,000. When he managed the one acre he did all the work himself. When he worked the ten acres he had to hire help. The help was incompetent, or did not understand. Onions fell in price; and at the final roundup that year he had a great stock of poor onions without a buyer. They rotted. He became discouraged, and lost lost all he had, and more too.

Now, while I indorse Mr. Hutchinson's advice to "keep more bees," I have been fearful that a good many, on account of a lack of experience or lack of business ability, not understanding their own limitations and those of their localities, would plunge in too deeply and meet with disaster. There are, undoubtedly, some people who can keep more bees by scattering them in outyards, and if they have the requisite training and business ability they would make more money. But where we find one person who can manage 500 colonies or more successfully, there will be dozens of others who can not go much beyond the 200 or 300 mark. The same rule applies to any business. But if I understand Mr. Hutchinson he does not advise that *every one* should keep more bees. He would be unwise if he did.

Now let us look at the other side of the question — the side of expansion. Perhaps here is a bee-keeper who has 300 colonies. During the busy season he is comfortably busy. But during six months in the year his time is not very profitably employed—a distinct loss; for it will take him only a short time, comparatively, to get his supers ready for the next season, nail his hives, repaint them, or do other preliminary work that can easily be done indoors, and yet his interest, or his rent and his living expenses are going right on. Suppose, for example, that this bee-keeper has 600 colonies, or 1000; that he has good business ability; that he has plenty of bee-range. Suppose he scatters this number in 15 different yards, none further than 15 miles from his home, and a good part of them not over four or five miles away. In the busy season he will, of course, have to employ help. If he has the right kind of executive ability he will see that that help is profitably employed. When the rush of work is over he can look after the marketing of the crop, put the bees into winter quarters, perhaps doing the work himself with the occasional help of one man and a team. In cold weather he can devote *all* of his time profitably to preparing for the next season. Now, while he is operating 1000 colonies it costs him no more to live; the same horse and wagon that will carry him to two or three hundred will carry him to the other seven or eight hundred. If he is running for extracted honey, the same extractor, uncapping-knives, and smokers, can be used at each yard. He is thus enabled to put his invested capital where it will be earning money for him *all the time* in the busy season instead of eating up interest part of the time. We will suppose that some of his swarms get away from him; we will also suppose that some of the work is not done as well as when he had only 300 colonies; but he has increased his honey crop by three times, possibly, and has increased his actual operating expenses only to the extent of the help that he has to pay for, extra hives, and sugar to feed. A couple of men and a boy three months in the year — the man at $2.00 and a boy at $1.00 per day would make this expense $450. To this we will add $50.00 for extra team hire. The cost of the extra 700 colonies with hives and supers divided by ten (assuming that they would last ten years) would be $250 more, or $750. But we must add $250 more for sugar for feeding, and $250 for sections, foundation, and shipping cases, making $1250 as the total added expense for the 700 extra colonies. Say he is producing comb honey, and that he can average 35 lbs. per colony. If this nets him 10 cts. he would get from 300 colonies $1050. If he has 1000 colonies his gross income will be $3500 by adding only $1150 to his general expenses.

This is a supposable and a possible case. The most that I would show is that the operating and overhead expense will not be proportionately increased if the number of colonies be doubled or trebled — all on the assumption, of course, that our bee keeping friend has the necessary skill and business ability.

In deciding the question whether we ourselves should keep more bees, we should go very cautiously; not increase the number all at once, but a little at a time, *making the bees pay their way*. Generally speaking, it would be the biggest piece of folly for one to borrow the money and treble his equipment of bees and hives in one season.

THE COMPOUND EYES OF THE BEE.

A Scientific Examination of this Wonderful and Complicated Organ.

BY E. F. PHILLIPS.

An examination of the large compound eyes of a bee will show that the outside is made up of hexagonal areas, thousands in number. Each of these hexagons is the outside of one of the elements of which the compound eye is composed; and, since they are all constructed alike, a description of one will serve for all. Each of these elements is called an ommatidium. If, then, we take a section through one of the compound eyes parallel with the top of the head of the bee we shall get some of these cut lengthwise, and these show best the structure, although it is also necessary to cut other sections at right angles to this plane in order to get the shape of some of the parts. The figures which accompany this will show the ommatidium cut lengthwise, and at the side smaller figures showing a section at right angles at the points indicated by the dotted lines. Another figure shows an ommatidium from a sealed larva, or, more properly called, the *pupa* stage, since the word *larva* should be applied only to the *unsealed* brood.

The outside portion, already mentioned, is the lens layer, *a*, and is composed of chitin, as is all the rest of the outside covering of the bee. The section shows this as cut, so that only two sides of the hexagon are shown, while the smaller figure shows the hexagonal shape. This lens layer is secreted by the two small cells, *b*, which show much more clearly in the pupa stage before the chitin is formed, since they keep getting smaller and smaller as the bee grows, until they finally remain only as very small remnants.

The next lower structure is the crystalline cone, *c*, which is composed of four cells, of which only two show in the long section. In the pupa stage the boundaries are much clearer, and the nuclei larger than they are in the adult eye. This cone is clear, and, like the lens above it, gathers in the light rays so that they can act on the nerves below just as the lens in the human eye gathers together rays of light so they can affect the nerves behind it.

Directly in line with the cone is a long rodlike structure which runs clear to the bottom of the ommatidium, called the "rhabdome," *d*. This probably contains the ending of the nerves which are sensitive to light. Around the rhabdome are eight retina cells, *e*, which have poured out a secretion while in the pupa state to form the rhabdome. In Fig. 2 the rhabdome is shown as only partly formed, and the retina cells come together below it.

Around the cone and retina cells there are pigment-cells that keep the light from passing from one ommatidium to the other, and thus making a confused image, just as the inside of a camera is painted black to avoid reflections. In the human eye we also find pigment, which is located just behind the nerve-endings, and answers the same purpose.

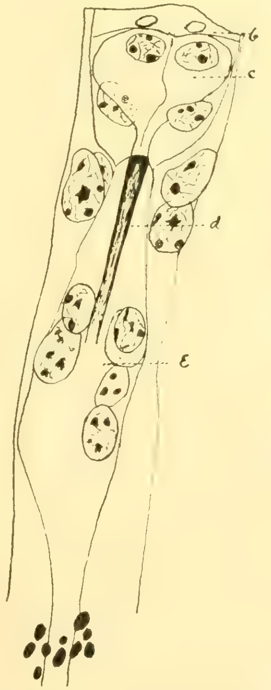


FIG. 2.—Ommatidium from eye of pupa of bee. Letters same as Fig. 1. Scale about twice as large as Fig. 1.

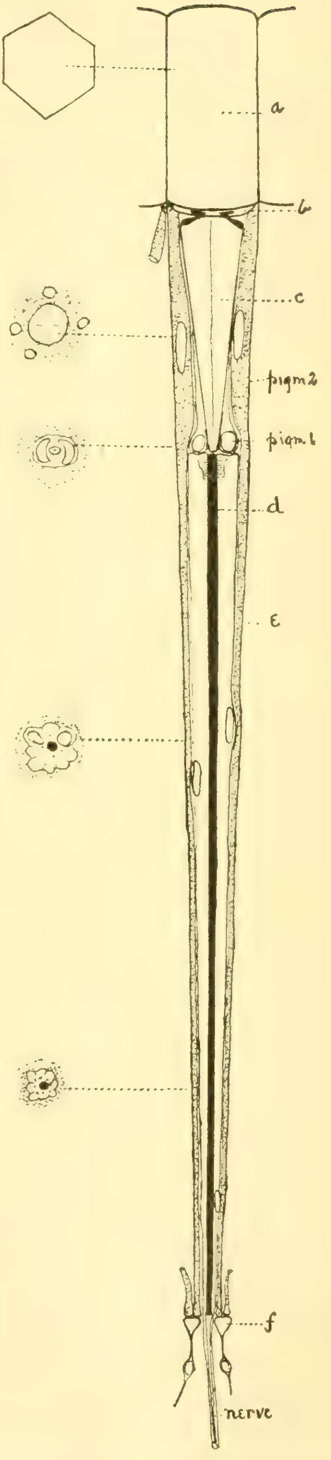


FIG. 1.—Ommatidium from an adult eye of the bee; a, lens; b, lens secreting cells; c, cone; d, rhabdome; e, retina cells; f, bottom layer cells.

There are two kinds of these pigment-cells. The ones at the base of the cone, *pigm.* 1, are two in number, and do not extend below the base of the cone. The other pigment-cells, *pigm.* 2, extend from the lens to the base of the ommatidium, and are twelve in number. The pigment in these cells is located principally at the outer portion of the eye; and the retina cells also contain pigment. thus making a complete sheath of pigment around the nerve and nerve-endings in the middle.

The nerve-lines of the eye extend down along the eight retina cells, and at the bottom come together, and the united nerve extends toward the brain. These eight nerves are shown in the cross-section as dots, and are omitted in the longitudinal section, since I did not wish to make the figure too confusing by putting in too many parallel lines.

The small triangular cells, *f*, which have projections from them, are not nerves, but form the bottom layer of the eye.

I wish to explain here that the small drawings at the side of Fig. 1 are cross-sections of the ommatidium at points indicated by the dotted lines.

I have given here briefly the structure of the eye, avoiding as far as possible the use of technical terms, and hope that the readers of Gleanings will be able to get an idea of what a compound eye really is. The technical terms of bee-keeping are Greek to an outsider, and the same is true for any other line of work; but I have, as far as possible, explained the terms used.

Grenacher was the first to work out this structure; and in "The Honey-bee," by Cowan, will be found a figure from his work, with a description. He does not, however, give the entire structure, and there are certain errors in his work which the advance in the methods of work makes it possible to avoid now. I would not attempt to detract from the value of the work of this great zoologist, for his work will always stand as a marvelous advance in science; but zoological methods have been improved recently to such an extent that it is now possible to obtain more accurate results.

My apology for taking up room in Gleanings with material which is of no use from a practical standpoint is that I feel that, the more a bee-keeper knows about the bee, the better he is. A man who cares simply for the amount of honey he gets and the dollars which come from its sale, may be a fine bee-keeper, but surely he misses a great many of the good things of life by limiting his range of vision in this way. In all the group of insects there is none of more interest than the honey-bee; and narrow indeed is the man who can work with them day by day and not have a desire to know more of them.

Philadelphia, Pa.

[The article above will be followed by another one in our next issue, by the same writer, on the relative size of drones and workers.—Ed.]

BEE MATTER.

Screening the Wheat from the Chaff; Sheep in Bee Yards; Shaking for Foul Brood.

BY CHARLES B. ACHARD.

On page 22 Mr. Louis F. Wahl asks for some method of keeping track of the good things in the bee-journals so we don't forget. I would refer him to Gleanings, page 49, 1903, where Mr. Doolittle gives his plan for "separating the wheat from the chaff." After reading Mr. Doolittle's suggestions I thought out a little different plan for my own use. I got a plain "Macey" card-index box, also one set of alphabet index-cards, and about a hundred blank cards. Whenever I come across any thing in a bee-journal that I think I might wish to refer to afterward I mark the article, or part of it, with pencil. About once a month I look the papers over and note the subject, name, page, and volume of the bee journal on the card, allowing a separate card for each subject. For example:

Wintering, requirements for successful—*Rev.*, 102, 1903.

Wintering, ventilation—*Rev.*, 114, 1903.

Queens, introducing—*Gl.*, 376, 545, 1903.

Queens, introducing, shower-bath method—*Gl.*, 185, 1903.

In this way, if I wish to look up any valuable suggestion it takes but a few seconds to find what I want. Perhaps you may think I would soon have hundreds of cards filled; but I find that, during the whole of last year, I used but a few over 100 cards, and they are, most of them, not half full, as I can put ten to twelve items under a given subject on one card. I take four papers—the *American Bee-keeper*, *American Bee Journal*, *Review*, and Gleanings, and I think the average bee-keeper takes no more than that.

On p. 31 Mr. C. J. Pearse would like to know about keeping sheep in an apiary, to keep down the grass. I tried a sheep in my apiary last season. Although I had a few dwarf fruit-trees planted among the hives, I thought if the lamb had plenty of grass it would not eat the foliage of the trees; but it did, nevertheless. One thing I would warn friend Pearse of: Let him be sure that the sheep are not bothered with lice or ticks. They find the corners of the hives an excellent place to relieve that itchy feeling, as I found out to my sorrow. I wonder if there are any readers of Gleanings who have tried sheep for keeping down the grass.

Last summer I had a little experience in fighting foul brood, and learned a lesson or two. Most instructors advise us to shake the bees on foundation in the evening, just before dusk. I did so. No sooner was the sun below the horizon than I commenced to shake the bees in the usual manner. But, oh my! how they went for me! Instead of running into the hive after being shaken in front of the entrance, they flew up into the air and attacked me from all sides. I received at least a dozen stings in different parts of my body. I used only a moderate amount of smoke.

Next evening I began about 20 minutes earlier. Every thing went well until the sun had sunk beneath the horizon, when the "fun" started all over again. Hereafter I shall shake no more bees after sundown—lesson number one.

The next thing the books and wise men say is, starve the bees three or four days. As I could not let the bees starve unless I confined them in the hive, I put a strip of wire cloth across the one-inch entrance, and raised the cover about an eighth of an inch, and also shaded the hive besides; but in spite of that, about a pint of bees perished in each hive treated—either starved to death or suffocated, or both. *Now* I know it would have been the proper thing to put the bees into the cellar or some other dark cool place—lesson number two.

Last year was my second season, and so I am but a beginner in the bee business. I ended the season with eleven colonies, five of which I am wintering outdoors with a deep telescope cover for protection (I am using the Danzenbaker hive with an empty super underneath the brood-chamber). They seem to be doing well, although they have not had a chance to fly since Thanksgiving. So far, this winter has been severe.

Roselle, Ill., Jan. 8, 1904.

[Sheep can be used for keeping bees down in a bee-yard, but there should be no foliage or low shrubbery which it is desired to preserve, for them to get at. A sheep will eat almost any thing green. He likes variety, and will nibble at choice shrubbery, especially grapevines. In some yards sheep are used to very good advantage for keeping down grass.

You need have no trouble about shaking after sundown, providing you use proper precaution. While bees are apt to be more nervous toward the cool of the evening, yet they can usually be made very tractable by blowing smoke in at the entrance and over the frames. After the first frame is pulled out, they can usually be handled without trouble. If they are very "touchy," blow a breath of smoke on each side of the frame before shaking.

In the case of strong colonies it is a little risky to close the entrance up with wire cloth if the weather is at all warm. In hot weather, bees are quite inclined to cluster out at night; and a closed entrance is liable to result in suffocating many bees.—Ed.]

QUEENS MATING TWICE.

Some Interesting Data on the Question.

BY PROF. FRANK BENTON.

In my note-book for 1886 there are some interesting memoranda which I made that summer in the island of Cyprus, and which up to this time have never been published in their entirety. But since Mr. Phillips has brought up, in his interesting article on "Fertilization," on p. 285, March 15, the question as to queens mating more than once, I will call attention to a presentation of this subject which I made in 1894 before the Entomological Society of Washington, an epitome of which may be found in their published *Proceedings*, Vol. III., No. 3, p. 169, issued March 28, 1895. Incidentally I might mention that on p. 19 of my "Manual of Apiculture" (Bulletin No. 1, new series, Division of Entomology), I said, when treating of the queen of *Apis mellifera:* "*Ordinarily she mates but once.*" This was first published in 1895, and I quite expected that some critic would call me to account for it—perhaps even sharply. Yet three editions of this work have been published by the U. S. Department of Agriculture — 24,000 copies all together — besides the editions of the Japanese and Russian translations, as well as portions that were translated into Spanish, French, etc., and, so far as I am aware, no person has taken exception to this statement regarding the queen. I was ready at any time to back it up by a statement of the facts contained hereinafter.

The following is the reference to my paper which was made in the *Proceedings of the Entomological Society of Washington*, and also the discussion which followed:

In a paper entitled "Observations on the Mating of Queens of *Apis mellifica*," Mr. Frank Benton alluded to the great interest which ancient naturalists manifested in regard to reproduction among bees and the mystery surrounding the subject, and cited the views of Swammerdam, De Braw, Réaumur, Huber, and other noted investigators of bee life during the past century. He described experiments made by Réaumur and Huber to secure artificial fertilization of queens. This was followed by a brief statement of the facts as now known regarding the flights and mating of queens of various races of *Apis mellifica*, especial mention being made of the view universally accepted at this time that the queen mates but once during her life. In proof of the error of this view, Mr. Benton quoted from his note book for 1886 the records, unpublished as yet, of two queens bred by him in Cyprus which he had watched closely, and which mated the second time; and he also cited a record published in *Deutsche illustrierte Bienenzeitung* for August, 1893, by K. Befort, wherein it was stated that a certain queen had mated twice, the second time two days after the first. Mr Benton believed these three observations were made with sufficient accuracy to prove beyond doubt that queens do in some instances mate twice, notwithstanding the fact that for a half century or more the opposite view has been held.

The paper was discussed by Messrs. Riley, Benton, Gill Schwarz, and Pergande. Professor Riley stated that, with the bottle bee of the West Indies, two or three or even five eggs are enclosed in each cell, and that all but one of these must perish. Mr. Benton said that with *Melipona* all of the eggs are laid in cells which are sealed before the larvæ hatch; but in the hive bee the cells remain open even to the end of the feeding period, and the workers remove the superfluous eggs. Dr. Gill remarked upon Mr. Benton's ability to recognize individual queens, and asked whether he could explain how he did it. Mr. Benton replied that it was very hard to say. It is a question of general appearance, size, color, shape, actions, and other points combined to produce an individual. Mr. Schwarz asked whether there is a double mating among the ants. Mr. Pergande replied that the queens live several years, but nothing is known whether they mate more than once. In his belief a single mating suffices. Mr. Schwarz stated that, with the white ants, all observers agree that no one has ever seen a copulation. This must take place within the nests, and the queens are so long-lived that there must be several matings.

The bottle bee mentioned by Dr. Riley is doubtless one of the stingless *Meliponas*, numerous species of which are common in the West Indies and South America. I hardly think that it is the rule with any of these species that "two or three, or even five eggs are inclosed in each cell," but the case in which this would occur is probably under conditions similar to those in which we find queens of *Apis mellifera* depositing numerous eggs in a cell.

It will be of interest, I think, to transcribe from my note-book the memoranda regarding these queens. They are as follows:

CURIOUS RECORDS OF QUEENS.

LARNACA, CYPRUS, 1886.

(1) June 9 caged in a nucleus a queen; emerged June 2.
June 10 released.
June 20, mated.
June 22, mated again.
July 4, laying.
July 9, queen is putting 8 or 10 eggs in each cell of the center comb; none in side combs; even puts eggs in where there are larvæ.
July 12, bees are sealing brood which looks like drone brood
July 24, finely marked workers emerging.
(2) June 2, emerged.
June 16, appears to have mated.
June 25, mated again.
July 5, laying.
July 12, bees sealing brood.
July 25, finely marked workers emerging.

The above are simply records made at the time. A word or two of explanation may, therefore, be appropriate.

I remember distinctly that these queens were watched from day to day, and their development and every thing which took place in the nuclei holding them was noted and remembered, so that I feel positive there was no error in the observations. When I wrote of a queen *that she had mated*, I positively saw her return to the hive with the drone appendages attached to her body. I knew that it was time for her to mate, and was on the lookout for it. After her mating I confidently expected to find, within 24 to 48 hours, that she had begun laying, as all conditions seemed favorable; and when this did not take place my surprise was great. I therefore stimulated these nuclei, since I wished by all means to have the queens ready at the earliest possible moment for shipment, and I remember distinctly that orders were waiting for them, therefore I was hastening the production of as many queens as possible in a short space of time. In the case of No. 1, numerous daily examinations were made after the first mating, so that the familiarity with this queen, and with what was going on in the nucleus, was quite the same as though it had been under continuous observation from daylight until dark, and it was positively *the same queen that mated ten days later*. The same may be said, also, of queen No. 2. I regarded these two cases as so remakable that it was my intention to publish some account of them. Many things intervened to prevent this, including my removal from Munich, Germany, to Carniola, Austria, and the establishment there of "The Carniolan Apiaries," and my final return, four years later, to this country.

The publication in Gravenhorst's *Deutsche illustrierte Bienenzeitung* for August, 1893, of the record made by Mr. Befort of the second mating of a queen in his apiary recalled to my mind the notes in my old book, and I presented the subject at a meeting of the Entomological Society of Washington, June 7, 1894. I have not at hand this moment the record published by the German journal mentioned above, but recollect that the account seemed clear enough to indicate that Mr. Befort had not been mistaken in his observations, although I confess that, if they had not been corroborated by my observations made seven years previously, I fear I should have looked upon them with some doubt. As it is, nothing could now shake my belief that queen-bees occasionally mate the second time.

U. S. Department of Agriculture,
Washington, D. C., March 24, 1904.

ACTUAL EYE-WITNESS PROOF THAT A QUEEN WAS FERTILIZED THREE TIMES.

On page 286, near bottom of first column, Mr. Phillips asks if any readers will have the patience to watch for evidences of two *impregnations* of the queen. I have noticed this evidence of two marriage-flights, but I did not know it was an unsettled question. Last summer I put into use a glass sided one frame nucleus or observation hive. I fixed it in a window-screen in a storeroom or pantry adjoining the kitchen. Among the many little things investigated (some of which I do not find mentioned in the bee-books) were the economies of subsistence and reproduction.

A young queen on her twentieth day of age (she could not fly out sooner because of daily rains) came back to the hive with copulatory organs of full size protruding. She was immediately siezed, pushed, and buffeted by a large number of bees in what seemed an unfriendly manner. They were trying in two parties, pulling in opposite directions to extract the appendage. I then opened the hive, and with a blunt knife held the parts, when the tugging of the bees at her head and body brought relief. They then soothed and stroked her; but her actions showed she was nervous and had been pained. In an hour's time things had become largely normal. Then the queen, which still seemed somewhat excited, went out, and in about three minutes returned with the same kind of appendage, which, like the first, had fully penetrated. I had changed my position, and could now intercept her and prevent her from entering the hive. Without difficulty I caught her in my open hand—she seemed too much surprised to escape—and by firmly holding her at the thorax I drew out the protruding organ. She bit me on the thumb. An examination of both organs showed that they had been pressed empty. I released her at the entrance and she entered the hive, but seemed dissatisfied and much wrought up. The bees drove her from the hive several times, but she persisted in reëntering. She could find no peace or refuge. Finally she flew away for the third time, and returned with the evidence of coition as before. I did not interfere, and it was some hours before the bees by tugging relieved the queen. She began to lay in the usual time, and workers hatched in due season.

I trust this may be of interest in connection with this matter. J. G. BAIER.

New Brunswick, N. J., March 22.

[These facts from direct and personal observation, from different (and I may say competent) eye witnesses, are very interesting and valuable. We should be glad to hear from others who may have any thing to offer on this question.

From the facts so far presented I take it that the second or third fertilizations take place before the queen begins to lay. Am I right?—ED.]

EGG-LAYING CAPACITY OF A GOOD QUEEN.

A Remarkable Frame of Brood; Holding a Swarm of Bees on the Bare Arm; how it Feels to have the Bees Clutching and Clawing on the Skin.

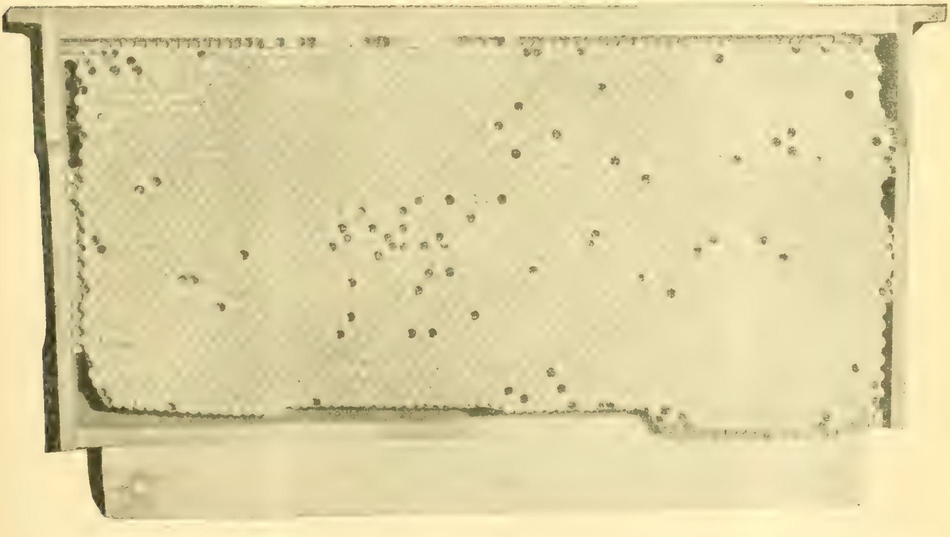
BY W. O. VICTOR.

While in conversation with Mr. Calvert last November, while he was in Texas, I mentioned several views that I have that I appreciate very much. He asked me if any of the bee-journals had had them, to which I had to say no. He said that I should write them up and send them to you; that I had been interested and benefited by the writings of others, and I should not keep my light under a bushel.

Now I am going to attempt to raise the bushel; and if we find but a charred wick I trust you will bear with me patiently while I attempt to bring forth a brighter light than we may at first find.

The first view I will present is a frame of brood from one of my apiaries of three-banded Italians which I call my imported-stock apiary. The mother of this brood was in her second year at the time this frame was photographed, and was in the very prime of life. I am sure she had not and never could lay better than she did at the time of depositing the eggs for this brood. If I made no mistake there were 21 cells in the entire comb that were partly filled with pollen. All other available cells were occupied by brood. As nearly as I could calculate, there were 8200 cells filled with brood in this frame. The most of the open cells had lost their occupants within a few minutes before the picture was made. By looking closely you can see several young bees crawling on the comb. These emerged from the cells while we were arranging the comb for the view. You can also see quite a number of cells with the cappings partly off, where the young bees are cutting out. Within two days more the comb was entirely empty and very light, as it was a new comb built on foundation. I would ask for a close examination of the outer edge of the comb, as you will see that all cells with walls on all sides were occupied by brood. Note that along the top-bar several cells are occupied that are built on the comb-guide, and protrude like drone brood in worker cells.

There is a history in connection with this view. I got a transient photographer to



A REMARKABLY WELL-FILLED FRAME OF BROOD FROM IMPORTED ITALIAN QUEEN.

make the negative for me, as I was not prepared at the time to do it myself. He made me a few prints from it I contracted with him to make quite a number for me, which I never got. Soon after this he went to the bay, rented a small boat, and went fishing. In a few days the boat was seen on the beach, but he has never been heard of, nor could my negative be found among his effects.

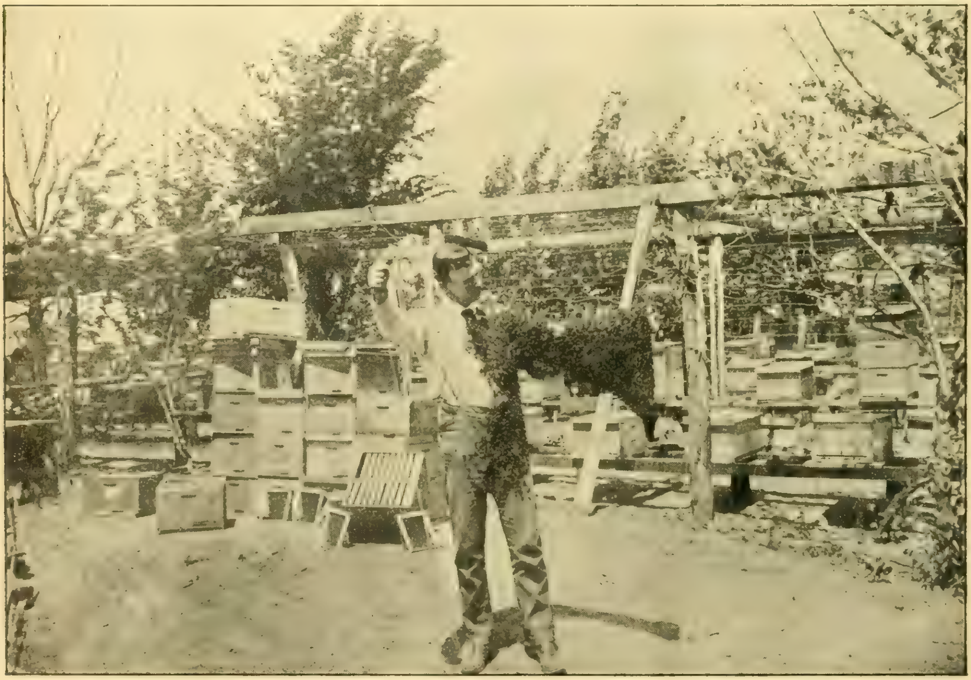
In regard to the number of bees that this frame produced at one hatch, a close calculation gives 8200, or about 2 lbs. of bees; and the brood was all hatched in about two days from the time the first hatched. This would indicate that the queen was laying at the rate of about ten and a half frames of brood in 21 days. Counting two pounds of bees to the frame would make 21 pounds in 21 days; and 60 pounds of bees in 60 days, or the average life of a bee.

Now, I do not claim that she kept up that rate of laying for 60 days, nor do I think I had 60 pounds of bees in that hive at any time; but I feel sure that Mr. Doolittle's high estimate of 4000 eggs in 24 hours was reached, and that they could have cast a swarm, had they swarmed, that would have broken the record mentioned in Gleanings for Jan. 15, page 82.

By the way, I have a picture of a swarm of bees that might have been a "record-breaker" in number of pounds, judging from their weight before I got them off my naked arm, and it is no doubt a record-breaker in some respects, in that I have never heard of a swarm of bees being photographed while on the naked arm of a man.

During the early spring I conceived a desire to have a large hive swarm, and catch the swarm on my naked arm, and photograph it, and for this purpose I selected six two-story hives that I allowed to become crowded to overflowing with bees. I prepared my camera for the work, and watched and waited for days for the swarm to issue. Finally I was rewarded by the swarm you see on my naked arm, in the picture, coming out just about noon, the best time of the day to do the work. I bared my arm to my shoulder, cast aside my hat, and proceeded to the bush where they were clustering. I soon found the queen, and caught her in my hand, and with the other hand I took bees from the cluster and placed them on my hand, where they soon discovered the queen and set up a call. I soon had them coming my way in great shape. I now opened my hand and let the queen go free with the bees; occasionally smoking, and shaking the bush to get the bees to leave it. Soon I had more bees trying to cluster on my arm than could, as their weight would break them loose. I finally got a twig with leaves on it and placed one end of it between my fingers, and I soon had my left wing completed, as you see. The white place near my elbow and at the point of my shoulder were the only places not fully fledged.

Although I practically had bees all over



W. O. VICTOR HOLDING A BIG SWARM OF BEES ON THE BARE ARM.

me (note the bees on my collar, and in my collar too if you could only see them), I did not get a single sting until I thought I had them all off, and straightened up, when, to my great surprise, one was under my suspender. I touched the button, and she did the rest. Although not a bee stung my arm, it felt as though thousands of pins were sticking it; and when I got the bees off it looked as if I had had it tightly wrapped with wire cloth from my shoulder to the ends of my fingers where the bees had been holding on; and for several days my arm had an itching, tingling sensation, caused by the bees pinching.

The non-swarming qualities of my bees delayed me in getting this picture until so late in the season that my enthusiasm had cooled in regard to it to such an extent that I neglected to use it up to this date as I had intended.

This picture is of my bees, myself, and my home apiary, taken by myself. See bulb in my right hand, and tube leading to camera. At my left is a stack of my famous four-barrel nuclei hives.

I have been reading Mr. Phillips' articles on queen-rearing, and am very much interested in them However, if I can get up nerve enough I may get down my "horse-brush" and try to smooth down some of his theoretical and scientific high places a little. Whoa, there, Mr. Phillips! don't kick too soon; I have not touched you. I am only thinking about it.

Wharton, Texas, Jan. 23.

[While it seemed to be unfortunate that the negative was lost, yet you are enabled through the half-tone process of engraving to make any number of duplicates.

This is a remarkably nice frame of brood. I have seen solid cards practically as good as this, but they were from the Holy Land stock, but never had any thing so full and nice from imported Italian queen, or, in fact, any pure Italian blood. I believe we shall have to award the queen that filled this comb with eggs the palm for breaking the record in egg-laying. If any one can beat it, in Italian stock, let him send a photo of it or for ever hold his peace.

I have often wondered myself how it would feel to hold a swarm of bees on the bare arm. I have sometimes thought of trying it; but when I have had a good chance to test it, there would be three or four more swarms, and then I would be too busy to try the experiment to see how it would feel to have the bees hanging on by means of their tiny claws. I admire your nerve in standing there and holding those bees so long, and it must have hurt some or your arm would not have had such an itching and tingling sensation. I wonder if those claws also carried a slight quantity of the bee-sting poison.

Yes, friend V., we hope you will not keep your candle under a bushel so long again. Let us hear from you oftener, and especially when you can produce such remarkable photos.—Ed.]

REPORT OF NORTHERN MICHIGAN BEE KEEPERS' CONVENTION.

Held at Traverse City, March 30 and 31.

BY A. I. ROOT.

The attendance, especially the first day, was not large; and at the very commencement of this report I wish to put emphasis on the importance of a proper convention notice. Tell first *where* it is to be; next, *when* it is to be, giving not only the day but the very *hour* on which the convention will be opened, and urge as many as possible to be on hand at the very opening. Last of all, tell at which hotel the bee-keepers are expected to stop. If it is a large city I would suggest not having it at the highest-priced hotel. Many of us are not in the habit of spending money in that way, and can not afford it. A. I. Root is one of that number—that is, my conscience rebukes me for putting up at the highest-priced hotels when there are thousands of places where money is so much needed — where a little money, for instance, will do a lot of good. I do not want an elaborate and expensive "spread." It is not good for my health, and there are thousands just like me. We should all put up at one hotel in order to be neighborly. The friendly visits among bee-keepers outside of the regular sessions are one of the very best features of a convention.

March 30, after I had my breakfast, I was on hand at the Montague Hall. The door was locked; nobody at the hotel knew any thing about a bee-keepers' convention, and the owner of the hall did not seem to know very much about it, only that it was engaged for that day. During the forenoon half a dozen bee-keepers came in, one after another. Nobody knew whether there was to be a forenoon session or not. Now, do not think I am reflecting on the good president. The melting snows, high water, and floods, at this particular time, had thrown all the railroads "out of whack." My own train that should have reached Traverse City between six and seven in the evening did not get there till between twelve and one. Small as the number was, however, we elected a chairman and held sessions. In fact, I do not know but I was a gainer by having a chance to become intimately acquainted with Mr. E. D. Townsend, of Remus, Michigan.

In the afternoon there were enough for a pretty fair attendance, and there were a few women present. Toward evening the president and secretary made their appearance, and we had quite a lively and profitable meeting during the evening.

One of the topics a good deal discussed referred more directly to Mr. Townsend, who seems to have largely inaugurated the plan of managing an out-apiary by visiting it only three or four times during the honey season. This idea is all the more interesting to us now when competent help is so scarce and high-priced. Even away down in Cuba friend de Beche says he gets a larger per cent of profit on the capital invested where he employs a cheap native Cuban, at a low price, than where he manages an apiary with an expensive expert. Of course, the expert produces a larger crop of honey, and keeps things in handsomer shape than the low-priced man. This is especially true in Cuba, where extracted honey often nets the producer not much over two cents a pound. Another thing, the cheap man produces more wax than the high-priced one; and wax is worth almost as much in Cuba as it is here. Now, it would make a long reply if I were to go over the whole ground of managing an apiary profitably by seeing it only four times during the summer. Of course, this is for extracted honey. Swarming is to be prevented largely by giving the bees plenty of room; and this is done by having enough empty combs for the strongest colony to store all they can gather. When honey first begins to come in, give each colony an upper story with eight instead of ten empty combs. Mr. Townsend uses ten-frame hives for obvious reasons. Whenever this upper story is, say, half filled, give them another super with eight more combs. Of course, the eight combs are equally spaced in the ten-frame hive. This gives a chance to lengthen out the cells before capping it over. The extracting is all done at the end of the season, no extracting being done at all except at the last visit. If you wish to prevent swarming, be sure you give each colony enough combs to hold all the honey they may gather; for if they get every thing full they will be sure to swarm out. Better give them too much room than not quite enough. Put all the empty combs on top. The bees then will fill the combs and seal them up below before going into the combs above. The honey is all most *perfectly* ripened and capped over. In uncapping, cut down low enough to make your combs all as smooth as a planed board. Get rid of all hills and valleys on the surface of your extracting-combs. In this way you will get more wax than by just taking off the caps. But with perfectly smooth level combs the uncapper can do twice as much work; and where the bees are not allowed to build combs, they must indulge their wax-building propensity in some way. Let them use it by lengthening the cells and capping them over. Mr. Townsend gets from one to two cents a pound more for his extracted honey than that in the general market. I can readily believe this. Of course, you want to be sure that every colony has a queen. After that you do not need to see the queens at all from the beginning of the season till the close. There is so little swarming, where the bees always have plenty of room ahead of them, that no attention is paid to hiving swarms at all. I would suggest decoy hives. But friend Townsend says he can buy bees cheaper than to chase after what few swarms there may be hanging there. When asked if he did not have his apiary near a residence he said that in many respects he preferred the contrary. One of his apiaries is nearly a mile from his house, and has never been meddled with. This speaks well again for Northern Michigan.

Before leaving the matter of extracting I wish to mention an idea he gave us about uncapping. Tip the comb a little from you so that the cappings when sliced off will fall into the uncapping-tank by gravity. If you let them slide off the knife and lodge on the uncapped surface they will be harder to get off from the sticky honey than before you uncapped them. With combs always as straight as a marble slab an expert uncapper will slice off the caps at a single stroke. Mr. T. does not use an uncapping-can. A keg or half barrel stands over a good-sized tub, being supported by two narrow bars of wood dropped a little below the rim of the tub. This is so no honey can go over on the floor. The operating strips are narrow so the caps will not be piling up on them. The droppings drop into the keg, and drain off into the tub below.

There was considerable discussion about getting the honey that drips from the cappings so as to get all of it, and not have it injured in the process. Of course, melting the cappings by the use of the solar extractor or otherwise will get the honey; but the heat will injure it in color and flavor. I think one of the women suggested that, if the cappings were put into a cheese-cloth bag, and hung up back of the stove, where it is *almost* warm enough to melt the wax, you will get nearly all the honey, and have it unharmed.

You will notice, friends, that the most the manager has to do in these three first visits is to put empty comb on the hives that need it. Father Langstroth said years ago that a good stock of empty combs was the sheet-anchor of bee-keeping. The question might come up, "Where shall we get our stock of empty combs?" Perhaps they can be built up in the home apiary.

Our old friend Covyou, who was present, showed us an excellent plan for wiring frames on slender wire nails driven in the frames and bent over in hook shape. By his plan there are two horizontal wires, one a little above the bottom-bar and the other a little below the top-bar, then there were two diagonal wires. This braces and supports the frame, and is put in very quickly.

Mr. Townsend winters his bees in Northern Michigan on a plan that commends itself very much to me at least. In the porous sandy soil he makes a V-shaped trench. Rails or other suitable sticks are laid crosswise of the trench. The hives of bees, with sufficient stores, no top or bottom boards, are placed on these rails. All the dead bees and other trash drop down between the rails at the bottom of the trench, there being no bottom in the hives. The bees have most perfect ventilation. Trash or boards are put over the trench, resting on rails laid on top of the hives. Then straw is put on, or other trash, and the bees are buried exactly as they bury potatoes in that region. A little ventilation is allowed through the trench; and under the snows of Northern Michigan the bees winter perfectly. Even during this past severe winter, the vegetation in the woods and in my ravine garden shows every evidence of not being frosted at all. I dug half a bushel of nice potatoes while cultivating around my peach-trees, and they were just as good as they were last fall. Many of them were not more than an inch below the surface of the ground. They never felt 28 below zero at all. In such a locality it is a simple thing to fix the bees so they will be perfectly safe from the time the snow falls until it goes off in the spring.

WORKING OUT-APIARIES FOR COMB HONEY WITH ONLY FEW VISITS.

Friend Townsend has not tested this plan as much for comb honey as for extracted; but he thinks it can be managed. It will take about one visit a week to look after the production of comb honey properly; and as the comb honey season does not usually last more than six or seven weeks he thinks about double the number of visits will be required. One man without any help, excepting when you come to extract, ought to be able to care for four apiaries of 100 colonies each, situated say six or eight miles apart. If I remember correctly, putting up bees for winter and taking them out of the pit in spring is a separate matter.

At one time during the convention I arose and asked the president if I could be granted the privilege of interrupting the proceedings of the convention for about five minutes. He said that, although such a request might generally be out of order, he thought (under the circumstances) the convention would grant it. Then, pointing out of the open window, I begged to ask if the winged crafts scattered over Traverse Bay, and flitting from side to side and from end to end like seagulls, were ice-boats or flying-machines. A big laugh ensued, and the friends assured me that they were ice-boats; and after the convention adjourned I was promised an ice boat ride. But man proposes and God disposes. When the convention was over it was raining, and I did not have my ride. On Monday, April 4, however, as there had been a brisk freeze the night before, the ice-boats were flitting again; and it was my privilege for the first time in my life to handle an ice-boat. I was going to say they went like the wind; but that is not half of it. They go *faster* than the wind. Why, when we looked out of the window that day during the convention they would go from one side of the bay to the other, up and down, and everywhere. It seemed to me like a glimpse from the Arabian Nights. An ordinary sail-boat, even under the influence of a good wind, or even a gasoline-launch, makes slow progress when seen two or three miles out on the water; but these things just skimmed and flew. When I took my ride there was hardly wind enough; but it was about the most exhilarating sport I ever experienced, to see the craft mind the slightest pressure on the rudder. Unlike the automobile, there is scarcely a sound or a jar. I have heard tell ever since my boyhood about "greased lightning;" and this seemed to express it more than any thing else. I then found that, with practice, you can go in any direction, no matter which way the wind blows, and one way almost as well as another. Besides, the thing is not at all expensive. The one I rode in cost only about $30, canvas and all; and the little ones, to carry only one person, can be made for less than half that.

In my next I will tell you of some of the inconveniences in that land of snow and ice during winter as well as some of the grand things, and also a little more about the convention.

BACILLUS ALVEI VS. BACILLUS MESENTERICUS.

Why the Two Can Not be the Same.

BY ADRIAN GETAZ.

I can not yet accept the conclusion of Dr. Lambotte, p. 1012, 1902, concerning the identity of *Bacillus alvei* and *Bacillus mesentericus vulgaris*. His arguments, briefly stated, are the following:

1. The two bacilli are apparently of the same size, shape, etc., when seen under the microscope.
2. Their development in cultures is similar, both producing a gluelike substance similar to the one found in foul-broody colonies.
3. Their sensitiveness to specific serums is the same.

The points above certainly look conclusive; and unless positive proof to the contrary is given, the identity of the two bacilli should be accepted. Still, they may be different things after all. Bacilli are very minute objects. Only their general features can be seen under the strongest microscopes. It is almost like looking at a group of men at a distance of a quarter of a mile. The differences between them might escape the observer.

The gluelike substance observed may not be the same in both cases; but even if it were, it would not be impossible that two different kinds of bacilli could produce the same substance.

Let us now take up the discrepancies. According to Dr. Lambotte's theory, the spores of *Bacillus mesentericus* are everywhere present in the atmosphere, but they have no action on sound colonies, while, on the other hand, they produce foul brood in unhealthy colonies. That is very near Mr. McEvoy's position.

But if that were true it would necessarily follow that sound colonies would never contract the disease, while unhealthy ones would contract it everywhere and at any time. The facts show an entirely different state of affairs. When foul brood exists in a locality, sound colonies catch it just as well as the others; and, on the other hand, there are plenty of unhealthy colonies in many places that do not contract foul brood, undoubtedly because the germs are not there. This seems to me conclusive against Mr. Lambotte's theory.

A second objection is the difference in vitality of the spores. The *Bacillus mesentericus* spores (if I understand Dr. Lambotte correctly) resist for years all exterior influences. According to the experiments of Watson, Cheshire, and recently of Dr. Howard, the spores of *Bacillus alvei*, while very resistant against chemical agents and pretty high temperature, lose their vitality in two or three days when exposed to the dry open air or the sunlight. A strong proof of the correctness of their opinion is furnished by the success of the McEvoy method of curing foul brood. After eliminating any possible contamination through the agency of the honey, the malady can be cured in a few days, even without disinfecting the hive. This shows conclusively that, during these few days, the spores that undoubtedly have been in the atmosphere and on the walls of the hive, and probably the bees themselves, have lost their vitality; otherwise the disease would certainly break out again.

A third discrepancy is shown in Dr. Lambotte's experiments in trying to inoculate the disease. He applied a culture of *Bacillus mesentericus* to some healthy brood. The bees cleaned out brood and culture at once.

I have had no personal experience with foul brood; but from what I have read on the subject I feel sure that an application of foul-broody brood on sound brood would have developed a raging case of foul brood. Furthermore, it is known that the bees can not and do not clean out foul brood (see the Dec. 15th issue, 1902, pages 1016, 1017).

His second series of experiments is objectionable also. Only a fifth of the larvæ became diseased with a malady similar, at least, to foul brood. The others were cleaned out. Moreover, the process he used has no counterpart in the circumstances obtaining in the actual colonies.

I do not say now that Dr. Lambotte is in error; but the objections I have mentioned should be seriously investigated. His experiments do not seem to have been conducted very judiciously. His first laboratory experiments seem to have convinced him that *Bacillus mesentericus* and *Bacillus alvei* are the same bacillus, and that he tried to force his actual experiments with bees in that direction.

In trying to inculate healthy brood with the disease it seems to me that the experiments should have been conducted simultaneously with *Bacillus mesentericus* from suitable cultures, and with *Bacillus alvei* from actually diseased colonies, perhaps adding, also, a third series inoculated with cultures of *Bacillus alvei.*

I think it was a mistake to kill the larvæ to be inoculated. We have no proof that the already dead brood contracts the disease, though it is likely to do so. But in the usual course of events it is the living brood that "gets sick."

Again, the disease is nearly always (if not always) transmitted through honey containing spores. It seems to me, therefore, that this mode of transmission should be the one experimented upon — that is, cause some honey to be infected with *Bacillus mesentericus* spores, and feed it to the colony experimented upon, to see if actual foul brood would develop.

Knoxville, Tenn.

[The conclusions of Dr. Lambotte are not, if I am correct, generally credited by those bacteriologists who have given the matter any serious attention. Facts from practical every-day experience, as you point out, disprove them in every important particular.—Ed.]

FORMALDEHYDE GAS AS A DISINFECTANT.

Its Properties and How it Should be Applied; its Repeated and Long-continued Application Essential.

BY J. R. HAGAN.

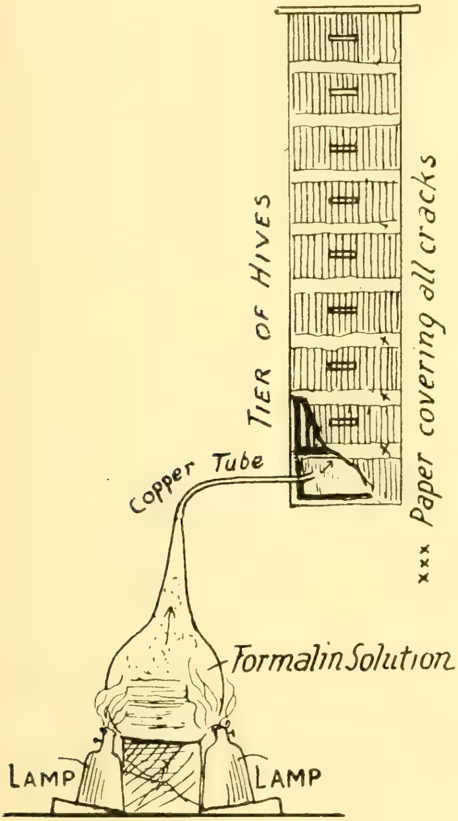
"Formaldehyde gas is a complex, unstable body, and failure in its use as a disinfecting agent results from an imperfect knowledge of its properties, its limitations, and its methods of production" (Resenau). Commercial formalin is a solution of water and wood alcohol, containing 40 per cent of formaldehyde gas, the wood alcohol being added to make it more stable. It being an unstable body, and subject to evaporation, it seldom contains the full 40 per cent, even when it is put up with the greatest care.

Formaldehyde gas is of about the same specific gravity as air at ordinary temperatures, thus making it necessary to generate it as fast as possible, and in large quantities, so as to expel the air and cause the gas to reach every part of the room or compartment to be disinfected. The gas must be brought in direct contact with the material to be sterilized; in fact, it has its power by uniting with nitrogenous organic and decomposing matter, turning them into new chemical compounds which are sterile.

Surgeon-General Sternberg places this gas next to fire as a disinfectant, but it is not considered an insecticide of any great value, for bedbugs, crickets, etc., can live almost indefinitely in the strongest fumes of the gas. Rabbits subjected to the fumes of the gas for a half hour show no ill effects, except irritation of the lungs and mucus surfaces, but may eventually die of pneumonia; therefore, when using it, care should be taken not to inhale its fumes.

Formaldehyde gas is now considered the best disinfectant known for destroying the germs of foul brood and other non spore-bearing bacteria. The spores bear the same relation to bacteria that seeds do to plants and trees, as they have a thick enveloping membrane which prevents the disinfectant from being easily applied. For this reason the fumes of the gas should be brought in direct contact with the germs in order to destroy them effectually.

In using formalin a long-neck copper retort is best for ordinary purposes. The flames should be applied on the sides of the retort rather than directly under it, so that, when the solution begins to heat, the steam will come in contact with the hot metal and be converted into gas; for unless this is done the liquid is simply evaporated, leaving a white powder known commercially as paraform. For the same reason, all of the solution put in the retort should be used before the fire is withdrawn.



A 20 per-cent salt solution added to the formalin is a great advantage, as it raises the boiling-point several degrees, and increases the production of the gas. The addition of 1 per cent of glycerine will improve the solution, as it will help to keep the paraform in contact with the combs being disinfected.

It should be borne in mind that, to disinfect thoroughly any thing as thick as combs filled with honey and bees, it will take at least 48 hours' exposure to the fumes of the gas to kill all the germs. It is still safer to repeat the application in a few days. In all cases it is better to apply the disinfectant in a warm room, as cold has a tendency to retard the evolution of the gas.

Washington, D. C., Feb. 23.

[Do I understand you to say that the germ of foul brood is "non-spore bearing"? I can hardly think it possible that you meant that. Your instruction on the use of the gas is valuable.—Ed.]

WHY CUBAN HONEY COMES IN WINTER.

Something about the Climate and Honey Flora.

BY HARRY HOWE.

Dr. Miller asks why the Cuban honey-flow is in winter I will try to offer an explanation. Here in the torrid zone there is no true winter, but spring and fall seem to lap over one another. However, there is usually about a month of weather too cold for honey secretion. December corresponds with September in many ways; so what seems to the doctor to be getting honey in winter is, to us, getting honey in fall.

There are flowers here all the time, but not all are of value for honey. Some locations have more at one time of the year, and others at other times. As the bellflower honey is considered the best, the bee-keepers have been in the habit of looking for locations having an abundance of that, and so it has come about that most of the Americans are in locations where the principal honey-flow is in the fall.

Here, although things are green and growing all the time, there are few trees or plants that are true evergreens. Nearly all have their period of rest, when they drop their leaves, and are, for a shorter or longer period, as bare as trees in winter in the North. But they don't all do it at once, so the larger part of the trees that one sees at any one time have leaves.

Some bloom before beginning the season's growth, like the peach; and others, like the basswood, bloom at the close of the growing season; so here we have two flows, from the fruit and forest trees, but they lap over like the seasons. Other plants, like the morning-glories, bloom during all their growth.

This brings up another point of the seasons here. During the summer there is usually much rain, and during the winter it sometimes does not rain for months. Plants like the morning-glories grow and bloom until the drouth checks the growth, and then die. Others, like the bellflower, are perennial, but stop growing during the dry season.

All plants secrete honey more profusely when there is plenty of moisture in the soil and in the air. Here the plants that bloom during the rainy season give a more abundant flow than those that come in dry times. But the honey gathered in the rainy season is very inferior in quality, and ferments upon the slightest provocation, while that of the dry season is of good body, and keeps well. The summer honey is also usually of poor flavor and color. These reasons have led the bee-keepers to look for fall and winter locations. During the rainy season, when every thing in dripping moisture about all the time, it is not possible to get honey properly ripened; and, also, the rain prevents the bees from working much of the time. Of course, the ideal location here would have honey all the year round; but such places are not easily found. There are very few places where one can extract for six months of the year.

Paso Real, Feb. 17.

Heads of Grain
from different fields

CUTTING CANDIED HONEY WITH A WIRE; HOW THE PLAN SUCCEEDED IN THE HANDS OF ONE OF OUR SUBSCRIBERS; PUTTING FOUNDATION INTO SECTIONS SO THAT IT WILL NOT KINK, WARP, OR BUCKLE.

Just about three months ago I was taking some candied honey out of our uncapping-can, placing it on the stove until loose, then proceeded to cut it into chunks, when the thought struck me, and I made mention to my son that, with an electric wire, we might be able to cut our candied honey into a shape to handle. A few months later we noticed in Gleanings the success of Mr. Warren in cutting the honey with a fish-line or wire. We immediately set to work, and in a short time we were successful in cutting 45 2-lb. blocks and 18 ½-lb. out of a 60-pound can, leaving 4 lbs. of odds and ends; and, as you say, the honey sells all right. My son was so enthused that he proposed we make a cut of our machine and send it in for Gleanings; but I said we'd better wait a while, as some one would likely have something more perfect. On receiving March 15th Gleanings I ran over the contents, and there it was. Yes, it is what we want, and what we need in this land of solid honey.

Now, there is one thing more, at least, that we want more light on, and that is, putting full sheets of foundation into sections in a way so they will not warp, kink, nor buckle when placed in the super. As we have been successful with a few thousand the past season, and as it is mentioned on page 634, 1903, that it has not been practical to fasten foundation to the end as well as top, for the benefit of those wishing to produce the most perfectly filled sections we will, in the near future, send a drawing and explanations how it is done.

G. J. Yoder.

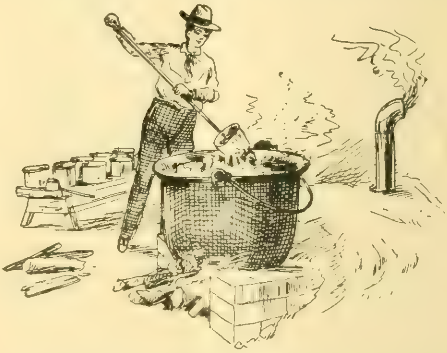
Meridian, Idaho, March 24.

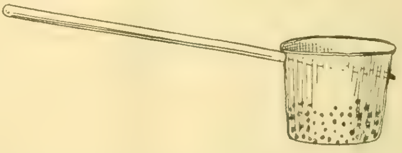
[We should be pleased to receive the drawing and description referred to.—Ed.]

A SIMPLE AND EFFECTIVE METHOD OF GETTING ALL THE WAX OUT OF OLD COMBS.

I have read all you have published about wax and wax-presses, etc. I have rendered several hundred pounds in the last two years, and my way of separating wax from the original combs is very inexpensive, to say the least. I see some make the claim that the majority get only about 50 per cent of the wax. Now, if I thought I was leaving 25 per cent in the slumgum I would buy a press. I have just rendered some wax; and if you are making experiments I should like to send you some slumgum from the batch I have just rendered.

Some two or more years ago some one told how he rendered wax. I forget now whether it was in Gleanings or elsewhere. He said he used a big kettle the same as some use in making soap, and he took an iron pail, holding about two gallons, and punched it full of holes and nailed a three-foot handle on it, and used that to push around in the hot wax; and as the wax runs in the pail through the holes he skimmed it off with a common dipper. That is the way I get my wax.





A. L. Dupray.

Camanche, Iowa, Feb. 16.

[We asked Mr. D. to send us by mail a small sample of the slumgum, which he did. We put it to the test, and found that *all* the wax was removed. This speaks well for the method here described. A plan similar in principle is to put the old combs in a bag, and then in a boiler of hot water, where it is weighted down. After it has "cooked" it is punched and punched repeatedly with a stick. As fast as the wax rises to the surface it is dipped off. When no more rises after the punching, the work is done. Any one who can't get more than 50 or 75 per cent of the wax must be a very careless operator.—Ed.]

TO SPREAD BROOD WITHOUT THE USUAL ATTENDANT DANGER.

The time of year is now coming on when a good many bee-keepers will begin to their sorrow to spread their brood, and in other ways try to force their colonies.

I wish to suggest a simple way by which this may be done without the loss so often attending the operation. This is by simply changing ends with one frame of brood out of three, the middle one of course; or, if a very strong colony, two out of five. By this means the honey in one end of the frame is removed by the bees, and eggs laid by the queen in its place, and in a few days the same thing is done on the two outside frames of brood; or, again, outside of the brood cluster may usually be found a frame of honey with the side nearest the bees filled with pollen. Reverse this, bringing the honey close to the patch of brood. This plan answers two purposes — stimulative feeding, in that the bees themselves remove the honey from close to the brood, and also stimulates the queen to lay in the whole sheet of comb rather than in small patches in several combs.

I have found it better, at this time of the year, where colonies are weak, and have two or three combs with small patches of brood, to remove the two outside combs and give them to a stronger colony, and, later, return them whole frames of hatching brood. H. Fitz Hart.

Wetumpka, Ala., March 1.

A KINK IN CLEANING BEES OFF FROM EXTRACTING-COMBS.

I will give you what I call a valuable kink in cleaning off the bees from extracting-combs. It may be old, but I haven't seen it in print. I go to the hive, take out two combs, set them down, then I move over the next one so I can get at each side with a Coggshall brush. I smoke a little, and rub the sides of the comb with the brush. The bees will tumble off and disappear in the lower part of the hive. Take out this comb, do the next the same, until all are cleaned off and taken out. Take out as fast as cleaned off. Then put the two combs first taken out back in, and brush. The combs in a ten frame hive can be cleaned in two minutes, and not a bee outside of the hive to crawl round — no queen lost, or robbers to bother. Before I adopted this method, when I shook them off sometimes they would come back with a vengeance; besides, the grass is full of bees for some time. The new way, the bees seem to be so much surprised that hardly one will take wing. W. D. Soper.

Jackson, Mich.

[I believe your plan to be good. It is worth the trying. It is very annoying to have the bees in the grass, and possibly under foot, and crawling up pants.—Ed.]

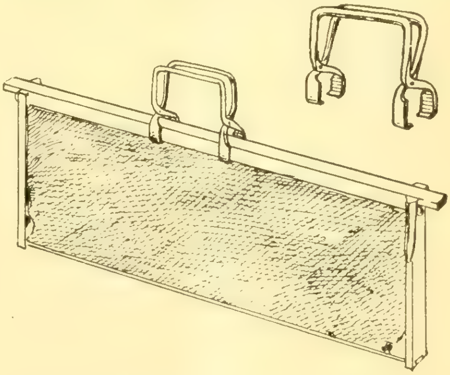
SHALLOW HIVES; HOW THE USER OF THEM MAY HAVE THE ADVANTAGE OVER HIS FELLOW BEE KEEPER WHO DOES NOT USE THEM.

Since my article appeared, March 15, I have received several letters inquiring about this high-pressure comb honey-production system There seems to be a demand among honey-producers, especially those in rather poor locations, for a system of very shallow frames and divisible brood-chambers that will enable them to produce comb honey where now they are compelled to extract. By this system I have been able to produce paying crops of comb honey right along when my neighbors with deep frames have been compelled to quit producing comb honey. Any one can produce extracted honey; but it takes an expert to produce comb honey here; but if he can do it he has the market all right. J. E. Hand.

Birmingham, Ohio, Mar. 29.

FRAME-TONGS FOR "SHOOK" SWARMS.

I send a description of a little tool which I think will be found a great convenience to most bee-keepers. I call it a brood-frame tong. The cut shows plainly how it is made; but the reader will have to get his blacksmith to make it unless he is fortunate enough to have a forge of his own. It is made of two pieces of ⅜-inch steel or iron rod, each about 12 inches long, and bent as shown in cut about four inches from each end. The jaws should be long enough to reach to the bottom of the top bar, and the tips should be bent in a trifle so as to go under the top-bar just enough to prevent its slipping out. The parts are made just



alike, and put together with rivets in the form of a double-jawed tongs as shown in the cut. In taking the frame out of the hive the top-bar is grasped in the center with the tongs with one hand, leaving the other hand free to use the knife or other tool to pry the frames apart; and if the bees are to be brushed off, the frame is easily held and turned from side to side with one hand while the other is free to use the brush to the best advantage. In shaking bees for "shook" swarms, etc., two of them could be used to advantage, one in each hand at each end of the top bar. They would afford such a strong grip that the most vigorous shaking could be given without fear of losing hold of the frame. I think the use of this little device would greatly lessen the number of stings received, and would be especially desirable to beginners on that account, as it would almost entirely obviate the necessity of taking hold of the top bar (which is often pretty well covered with bees) directly with the fingers.

E. S. Webster.

Hutchinson, Kans., Feb. 16.

[Something similar was sold like this by Thos. G. Newman, then of Chicago, many years ago. Instead of two jaws there was only one. Personally I have never believed these tongs were worth much to the practical bee-keeper; but I can see how those you describe *might* (I don't know) be very serviceable in shaking swarms. I should like to get reports.—Ed.]

HONEY FROM PINE NEEDLES.

In reading Prof. Cook's article on vegetable physiology, p. 281, in which he speaks of "great drops of delicious honey-dew" on the pine foliage in the Yosemite region, I was reminded of a similar incident I once witnessed in Northern Michigan. It was in October, after severe frosts had killed all the flowers, and bees had quit work for the season. One pleasant morning I was surprised to find my bees as busy, and coming in as heavily laden as in the midst of a rich basswood flow. Of course, I was greatly surprised; but on reflection I said to myself, "Some one has cut a bee-tree in the woods near by, and the bees are gathering the waste honey." For two days the work went on, hundreds of bees dropping in front of their hives from weariness, and so heavily loaded it was difficult for them to rise.

The third morning they went to work as vigorously as before. I was then satisfied it was not waste honey they were gathering, and started out to investigate. It was easy to follow up their line, as they all went in one direction, and kept up a constant roar over my head. Going about a fourth of a mile I came to a grove of young white pines from five to twenty feet high, and the mystery was solved. There on the ends of numberless pine needles hung drops of nectar, glistening in the sunlight, clear as crystal, and sweet as honey. A bee had but to alight on one of the needles, fill its honey-sac, and depart, leaving enough to supply its successor.

In taste the nectar was deliciously sweet and pleasant. It seemed to be perfectly transparent, and must have made excellent honey.

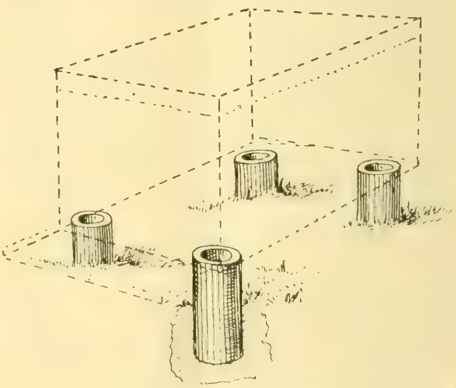
I kept bees for twenty years in the pine regions, but this was the only time I ever knew honey to be gathered from pine needles.

D. C. Leach.

Springfield, Mo.

A DRAIN-TILE HIVE-STAND.

The time will soon come when hive-stands will be needed, and I want to tell about a stand that is cheap, and will not rot—one that will hold up your hive square and nice—no place for mice or moles to work; one that will not throw your hives out of level; easy to mow around; takes little space, and will last for years, and keep always in shape. It is nothing more nor less than a good smooth 12 inch drain tile, set three or four inches in the ground, leveled up, and dirt well packed around the tile. An eight-frame hive stands on it snugly and safely, and you can easily turn your gum around if you so desire. A thin board to lean up in front for an alighting-board, and the thing is complete. It is the cheapest, tidiest, and most durable hive-stand ever yet introduced.



J. W. C. Gray.

Atwood, Ill., Mar. 8.

[Wouldn't bricks set on end in the ground be just as good and cheaper?—Ed.]

THE SALISBURY HOUSE-APIARY NOT A FAILURE AFTER ALL.

On page 232 I notice you are going to drop the Salisbury house-apiary from the A B C book. Now, don't you do it. The house apiary was all right, or nearly so. All it lacked was proper management; that is, a system suited to it and the bees. Four years ago I built a Salisbury house-apiary at an out-yard for extracted honey, and it was so much a success that two years later I built another for comb honey, which has been equally successful. I have a cellar under the last one that winters perfectly. I have produced tons of honey in these house-apiaries. If you come up in this part of the State, I shall be glad to have you come and see these houses in operation, and will give you the management whereby I have been able to succeed. I have three apiaries containing 250 colonies. FRED H. LOUCKS.

Lowville, N. Y., Mar. 26.

[I did drop the Salisbury house-apiary, but if I had received your letter sooner I would have kept it in. I shall be pleased to look yours over if I am in your vicinity. —ED.]

THAT BOARDMAN HONEY THAT CANDIED.

I note what you say on page 120, "the Boardman honey candying at last." I was much surprised, I assure you, and went at once to examine some samples of several dozen jelly-tumblers from which the one you have had exposed on the window-sill was taken, which you say was grained solid. I am pleased to say I found them as I expected — in perfect condition, without the least perceptible change, and they have been subjected to a severe test in a winter temperature for two winters — a test which I had thought entirely satisfactory for all practical purposes.

But how shall we account for this sample which you have reported acting so radically different from the rest? It acts like a different honey; and are you quite sure that some meddler has not been helping you, and has been tampering with the sample on the window-sill? I should be pleased to have you investigate further, and report.

East Townsend, O. H. R. BOARDMAN.

[I am positive it is the same honey. It has not been touched by any one but myself.— ED.]

TRANSFERRING FROM OLD BOX HIVES WITH FAST BOTTOMS.

I can buy ten or twelve colonies of bees in box hives. The boxes are made with bottoms nailed fast, and up in the hive a few inches. How would you transfer from such hives? and at what time in the spring would you do it?

I understand how you would do it if that bottom was not there; but you can not get the bottom out without tearing the hive all to pieces. In that way, would it be better to use what comb and brood I could, or would it be better to get bees out and put them on frames with full sheets of foundation? B. S. ADKINS.

Huntington, W. Va., Feb. 26.

[I would suggest that you blow quite a quantity of smoke into the entrances of these hives, enough to subdue the bees thoroughly; then with a cold chisel and hammer pry the bottom off. I hardly think you would find it attached to the combs; and, even if they are, a long-bladed knife will sever them. After removing the bottom, put a box or another hive on top of the old hive, now inverted, with bottom off; drum on the sides until the bees go up into the box on top. Now tear the hives apart; cut out the brood-combs and insert them into the regular frames of the new hive. I would use nothing but good cards of comb. The pieces had better be melted up, except where they contain brood. These can be fitted into the brood-frames and secured in position by winding string (the ordinary grocer's twine) around the frames, and tying. The ordinary sticks and transferring-clasps I would not use. Strings are far better, because the bees will gnaw them off if you should forget to do it later on.

I would use full sheets of foundation next to the combs of brood. It would pay you not to use any of the old empty comb unless it contained brood. Natural-built comb is apt to contain drone comb, have irregular surfaces, and holes.—ED.]

CAN HIVES AND COMBS IN WHICH BEES HAVE DIED BE USED AGAIN?

My neighbor has 50 hives of honey in which the bees have died from exposure to the severe winter, being left on the stands. I can buy them cheap, but am uncertain what they are worth. What shall I do in order to feed them to my bees? They will most likely be candied, will they not? What can I do with them in that case?

MYRON PICKERING.

Nevins, Wis., Feb. 23.

[The hives from which the bees have died can be used by you this coming spring. We would not advise you to weaken your present colonies by dividing until settled warm weather comes on. Then shake a few bees with a queen on to the combs in which bees have died. If it is warm weather the bees will clean things up cheaper than you can.—ED.]

ADULTERATED HONEY THAT DIDN'T SELL A SECOND TIME TO A CUSTOMER.

On page 187 you ask for reports from different localities about bogus honey or glucose sold as honey. I know three grocers who tried adulterated honey in nice glass jars. They said it was very slow sale. They finally sold it at cost, and then handled my honey in bottles. I see a great many of them have corn syrup and honey drips, etc., in tin cans. Of course, they sell some; but I don't think many people will buy a second can. J. M. CUTTS.

Montgomery, Ala., Feb. 26.

[Yes, and the corn syrup will fail to sell after a time when consumers come to know its real character.—ED.]

SWEET CLOVER FOR CATTLE AND BEES.

I have twenty acres of the white sweet clover growing. It is all right for bees, and is good cattle pasture in early spring.

Onawa, Ia. S. R. FLETCHER.

OUR HOMES,

BY A. I. ROOT.

But the Comforter, which is the Holy Ghost, whom the Father will send in my name, he shall teach you all things, and bring all things to your remembrance, whatsoever I have said unto you.—JOHN 14: 26.

Quite a little remonstrance has come in from the dear friends who love GLEANINGS and God's holy word, because I intimated in the last issue that James might not have been inspired when he told us about healing the sick. A few have hastily decided that I meant to doubt the inspiration of James. What I did say was this:

I believe James is right; but I do not believe he had divine inspiration so that he knew about these things as did God the Father, or Jesus the Son later on.

Now, I simply doubted James' divine inspiration in regard to the matter of healing, because it was somewhat out of his line. As I said in the last issue, the Bible is not a doctor book, but its field is a spiritual one. Paul on one or more occasions intimated, you may remember, that he spoke of certain things without authority; or, if I understand it, it was his individual opinion, without the inspiration or insight that God had given him in spiritual things. Even Jesus himself says, Matt. 24:36, that there are certain things known only to the Father—that they are not revealed even to the angels in heaven. If this is true it would be nothing strange if many of the writers should speak occasionally in the Bible of things where they had not authority, but gave only their own individual opinions.

I give below a letter from a dear brother whom I visited in one of my wheel-rides in Missouri. You will notice in the outset that he rather takes me to task; but before he closes he seems to stand pretty nearly where I do in regard to this matter of divine healing. As his reasoning seems to be based on a careful reading of the Scriptures, I take pleasure in giving it here:

Mr. Root:—I read your Home talk in your Mar. 15th issue, and, though I am no minister, I must raise some objection to some of your teaching there; and that is, in regard to James not having full authority. I believe, and am fully convinced, that all the apostles' writings are to be considered and accepted as fully inspired, and to be God's word, and not man's, and that Jesus wants us to accept it as such; and to reject their teaching means to reject Christ's teaching—in part, at least. Christ said, "All power is given into me," meaning he had all authority, and can give that authority to whomsoever he will. Then he said, "Go teach" all peoples etc., meaning he gave them the authority. At another place he told them, "Whosoever heareth you heareth me; and whoso despiseth you despiseth me." At another time he told them, "As my Father hath sent me, so send I you." Again, he says, "Ye shall sit on twelve thrones judging the twelve tribes of Israel" meaning that they shall teach forth the word of God that will be the judge of all people. Again, "Ye shall be my witnesses to the uttermost parts of the earth." So they were to be his representatives, and Jesus was their authority and backing. Again, "I will send you the Comforter, who shall bring all things into remembrance that I have told you, and he shall lead you into all truth" This takes in all, and no question; but all the apostles' writings are truth and nothing but truth, and perfectly in harmony with Jesus' teachings and will.

In regard to the subject you wrote on (health), etc., I will briefly give you some of my opinion, or, better, say faith in it; and if it will give you any light on it, all right; and if not I hope there can be no harm done.

I, too, have studied that subject considerably, and am much interested in it. I believe Christ did not teach health and health hints, mainly for the reason that his work was still far more important than teaching bodily health; and he had all he could do in teaching moral and spiritual principles; but he left something on this subject for us through his apostles who were still to carry his work further, and complete what he had begun.

In regard to healers, in the times of the apostles there were those who had the gift of healing; but that this should continue to be so I doubt very much; and the scripture you quote as a text proves it. If it had been intended that all through the ages there should be those who had the gift of healing by the Holy Spirit, no doubt James would have said that, if any were sick, they should call the healers to heal them. We also see that Paul left a certain friend at one place sick, seeming that he had either lost some of his power to heal or else could not heal every one. Again, Paul tell Timothy not to drink too much water or not just water (as the German makes it), but use a little wine for his stomach's sake; showing, first, that he did not heal Timothy, and, second, that it is right and needful for man to do what he can that will be conducive to his health. He did not say Timothy should pray for his health or call for the elders to pray; so we learn by taking all these scriptures into consideration that man should use what remedies and physicians he thinks best for restoring his health; and I think James means, in addition to this, if the sickness prove stubborn, and nothing seems to help, as is sometimes the case, then his advice and counsel is to call for the elders of the church to have them pray over him; and then, if it be God's will, the sick will be restored; or we might say the elders will get faith to believe God will heal when God's will is to heal. This is God honoring, and I believe it should not be neglected as it is.

I have seen on several occasions—once with my mother and once with my wife—where this was done, and the sick got along very well yet using remedies, and in the one case using surgeons, but first asking God to direct and help.

In regard to the applying of oil, I am not so sure about that. Your teaching on that may be right. However, I have rather thought it might be that it should be applied only as an emblem of help from God.

I will say that all the healers I ever heard of were imposters or deceivers, and not true Christians; and that this deceiving doctrine of divine healing has taken considerable hold on some of our people, and I am anxious that it be rooted out. But this to call for elders to pray over the sick is entirely different, and shows faith in God.

I am glad your wife could be spared to you. It seems that sickness comes sometimes just for a lesson to us. P. HOSTETLER.

East Lynne, Mo., March 23.

Another good brother takes me to task because we sent for a doctor at all. He says in substance that for many years God had been his only physician, and he is now very much healthier than when he used drugs and employed doctors. I do not doubt this at all. My humble opinion is that thousands of people would enjoy better health by a similar course. As he seems to be a very candied man, I wrote back to him something as follows:

Dear Brother:—It is, no doubt, your privilege to live—yes, to die—without a doctor if you choose; but if your dear wife were near death would you dare to carry the responsibility of letting her die without calling on the best physician you know?

I told him that, after the kind letter he had written me, I should be very glad to get his opinion in the matter. Here is his reply:

In regard to sending for a doctor when those near and dear to me were in danger, I don't think I would unless they insisted upon it. D. I. WAGAR.

Flat Rock, Mich.

But, dear brother, how about *helpless children* who are not old enough to have an opinion in regard to the matter? I tell you, friends, it is a serious thing to neglect the aid of a skilled up-to date physician.

Another writer suggests that if we had doctors who were God-fearing men, temperate, pure minded, and devoted Christians, we who are professors of religion and members of churches could more consistently think of calling in the aid of a physician. I have often thought of this. I have sometimes wondered whether we were not demanding too much of our family physician. We expect a minister of the gospel to be in every way a model of righteous and godly living; but when we become intimately acquainted with them we are pretty sure to find that even they are human. We may know a man for long years, and deem him almost a perfect sample of manhood; yet closer acquaintance, or a longer one, will, I was going to say invariably—perhaps I should say *almost* invariably—show that he has some peculiarities, or perhaps I might say that, under certain tests, he shows himself to be frail. Now, we hardly ever expect a physician to be up to the spiritual standard of the minister; but I do think he ought to come pretty near it.

Not very long ago I was a little vehement in declaring I would not patronize or avail myself of a certain man's services because he had a bad record: but the manager of our business looked me square in the eye and said, "Father, if you are going to carry out that rule you will block business, and deprive yourself of many great and good privileges. Again and again we need certain things done that are exceedingly important, not only to ourselves but to the world at large; and the only available man is the one whom you would call, and perhaps with justice, a bad man. What shall we do?"

I think it was Ernest who suggested here that we had better accept the good, or, in other words, put the man at work at some honest employment, forgetting or overlooking, for the time being, his past, or what may be at some time a bad record. In other words, it seems to behoove us to make the best of humanity as it lies before us—encourage the good and discourage the bad, at the same time praying for divine guidance and inspiration, remembering the words at the head of our text.

April 8.—I have just returned from the convention at Traverse City and a brief visit to the cabin in the woods. During my absence a great pile of letters have come to hand in regard to this matter of divine healing and Mrs. Root's recent sickness. Letters are on my desk from the advocates of every line of divine healing, from bright intelligent men and women; and my attention is called to many precious Bible promises that I had never before discovered or understood. I finally took all of these letters over home, and Mrs. Root and I went over them together. As each one was read we agreed that the writer must have some kind word of recognition; but as my time and strength are limited in this matter of correspondence, we finally decided that I should thank the friends who have thus written, here on these pages. Perhaps a little later I may make extracts from different letters. There is truth, without doubt, in all of them, and I believe we are all getting nearer together in this matter of treating disease. I hope physicians as well as their patients will all unite in asking God to guide us in the way of all truth, for then we certainly shall eventually come on the same ground or pretty nearly so. What a beautiful world this would be if *all* were *seekers* after truth and righteousness! One great point comes out strong and clear to me in all this correspondence: That the time is coming soon when this matter of "robbing sick people" by fraud and deceit will be, largely at least, done away with. There is wisdom enough in this age in which we live to do away with superstition, and with what is worse still, the downright *swindling* and *hypocrisy* in this matter of healing the human frame divine. A large number of the letters tell us of those who formerly put their faith in drugs, spending vast sums of money in going from one thing to another, like the woman mentioned in Mark 5:26, who "had spent all she had, and was nothing better but rather grew worse." There are many letters from such people, closing with the glad news that, after they put their faith in God, and had prayerfully searched for the laws of health, they found not only health but happiness too, without medicine of any kind. I am sure there is a great awakening just before us—an emancipation out of darkness into light; and it is coming through the gospel of Christ Jesus our Lord and Savior. I am begining to think the Bible is *considerable* of a "doctor book" after all, if we search it more carefully and take it right.

SOMETHING GOOD FROM THE MODERN FARMER AND BUSY BEE.

Not long ago I suggested that Mr. Abbott, editor of the above, sometimes lets his peculiar zeal and fighting qualities get started in the wrong direction. But now he is on the right track for sure, and we take pleasure in copying two of his recent editorials.

OUR STATE AND COUNTY FAIRS; DRIVING OUT LIQUOR-SELLERS, ETC.

> "Our fair will be clean this year," is what the president of the Illinois State Fair Association writes to the *Breeders' Gazette.* Good! We are making progress: the fakir and the drunkard maker must go. Who will be next? It is an insult to the farmers to announce an agricultural show, and then fill up the grounds with saloons, fakirs, and all kinds of disgraceful semi-nude shows just as though he and his wife and children were capable of enjoying only the filthy debaucheries which characterize so many agricultural fairs. Good for Illinois! Missouri welcomes her into the ranks of the clean fair States. What State will be next to banish all this filthy and disgusting debauchery from its fairgrounds? Let the good work go on until there

is not a State in the Union that will dream of permitting any such thing to find entrance into its fair gates. The whisky advertisements and the fakir must go, as must also the saloon and the gamblers from the fairgrounds; and the sooner they go the better it will be for the rising generation.

WHISKY ADVERTISEMENTS IN THE HOME PAPERS.

We learned some time ago of a gentleman who protested against a prominent fruit-paper carrying whisky advertisements, and the publisher wrote him saying that he had known men to get rich by attending to their own business. Now, this is an old gag, but in this case it was very much out of place, for the man who wanted to place some legitimate business with this paper had a perfect right to offer his protest against being forced to put his advertisement in such company, and he was attending strictly to his own business when he let the fact be known that he did not countenance any such advertisements. It is true, a paper is private property; but it belongs to that class of property whose value is in proportion to the patronage it receives; and the people who patronize it have a right to demand that it be clean and decent in every department. Especially is this true of a paper which is taken into the privacy of the home, and is read by every member of the family The head of the family who does not look closely to the character of the papers which are taken into his home, for his children to read, fails to attend properly to the most important business he has in hand, namely, the moral and spiritual development of those who have a right to look to him for proper guidance and protection in early life. We trust that the day is not far distant when people will not dare to write such a letter to a patron.

Temperance.

LOCAL OPTION IN CANADA—A CORRECTION.

Dear Mr. Root:—I was much surprised to read what you have to say about "local option" in temperance column, Gleanings, March 15 I am no in a position to speak of things as they are in Arizona; but as regards Canada your statement concerning majority required to enforce local option is erroneous, Mr. Calver notwithstanding. In fact, we have municipalities quite near us under local option, some of which carried the act by only three or four majority. Possibly Mr. Calvert may have had in mind the referendum submitted to the electors of Ontario a year or so ago. In this it was stipulated that a certain percentage of the number of votes on the voters' list were required to be polled in order to enforce the act.

As regards ' Queen Victoria introducing such a regulation," I would say, friend Root, that no queen or king has really any thing to do with the framing of our laws, as we practically govern ourselves, even if we are not a republic. Just here I would say that we are anxiously awaiting developments in our local legislature, and are earnestly hoping that most stringent regulations will be put on the liquor traffic. The great majority of the electors of Ontario demand this, and are entitled to it, as, both times the question has been submitted to the people, the prohibitionists have won by a large majority.

By the way, Mr. Root, it is rather amusing to see how correspondents from this side of the line are always credited with "Canada" as their address. It is possible to travel in any one direction for hundreds of miles and be in "Ontario" all the time, not say any thing about Nova Scotia, British Columbia, Manetoba, etc. It would seem very vague, even to us Canucks, to speak of Mr. A. I. Root, Medina, United States.

Allow me to speak with appreciation of your Home department. Nearly all the bee journals come to our home, and Gleanings is one of them most eagarly looked for. J. L. Byer.

Markham, Ont., March 24.

Friend B., I am exceedingly obliged to you for setting us right. Before you close, however, you admit, if I am correct, that, although the *majority* in your country are in favor of local option, like your brethren in the United States, by some means or other you do not *get it*. We have just had a sweeping victory here in Ohio over the brewers and saloonists, on the matter of resident local option. The saloons of Ohio are all to be banished from neighborhoods where the majority of people want them banished.

Of course, we are exceedingly glad to know that we were mistaken about Canada; but how about that young sister of ours—Arizona? Is it only local, or is it the rule all over the State that it takes two temperance votes to offset the vote of one beer-drinker?

Tobacco Column.

TOBACCO FROM A BUSINESS STANDPOINT.

A large business firm in a western city wanted a young man for a special purpose. Sixteen applicants for the position were on hand at the appointed time. Among them was Mr. Gray Newark, whose parents live at Cadillac, Mich. The position was a good one, with a large salary; but their requirements were such that none but first-class men would probably apply for it. When young Newark saw the fifteen other stylishly and expensively dressed boys with patent-leather shoes, gold watches, etc., he felt a little diffident in regard to his plain and simple work-day suit, etc. When it came his turn to be interviewed, one of the first questions was, "Do you use tobacco in any shape or manner, and have you ever used it?"

The young man was able to reply that he had never used it at all, and never expected to. Of course, a good many might claim as much in order to deceive the questioner, and, perhaps, would form the purpose of breaking off then and there to get the position. Young Newark said, however, that his questioner kept his eye on him so keenly that he felt as if he would read him through and through, and decide whether he told the truth or not. Right here is a point I wish to emphasize for the boys. Many of you may have a mistaken notion that an untruth will pass current at such a critical moment; but I can say from many years of experience in hiring hands that a sharp up-to-date employer is seldom deceived in a young man. Sometimes in our business here an applicant comes before the members of our firm. Well, I have noticed frequently that, when some applicant attempts to deceive us, we all recognize by his talk and actions that he is untruthful. When we get hold of an honest boy or young man, his looks and actions, and the ring of his voice, tell almost unmistakably to all present that he is honest and straight. A man's character and habits are usually stamped more or less on his forehead. But let us go back to our young friend Newark.

The next question was something like this:

"If you have never used tobacco, probably you have in like manner abstained from all intoxicating liquors."

Of course, Mr. Newark could answer in the affirmative. After he had been with his employers about a year they wanted a man to travel to visit the leading drygoods stores of the United States. Of course, the first trip would be with an old hand. Then the firm addressed him something like this:

"Mr. Newark, when we send you out into the world among strangers you will be exposed to temptations you have not met here; and did we not believe you would carry yourself as straight away from home as you do here, we would not think of exposing you to such temptations. We believe, however, that your principles are so rooted and grounded that we shall incur no risk in giving you this position; otherwise we should not think of asking you to take it."

Once more this young man was promoted away ahead of his fellow-clerks, with a salary corresponding. He is to travel in Pullman cars, put up at high-priced hotels, etc.; but he is expected to carry his temperance principles along with him wherever he goes. Do you see the point, boys? Such a little thing as a decision in early life that he would have nothing to do with tobacco seems to have fixed his future. So far as I am informed, his employers did not ask him if he was a professing Christian or a member of the church; but my impressions would lead me to believe that the young man who has built up character on such a basis would, as a rule, seek to be allied with church people, an Endeavor Society, the Y. M. C. A., etc.

Now, boys, does it pay to learn to use tobacco when you know nothing about it? This drygoods firm I have mentioned is not particularly different from others that pay large salaries for first-class men throughout this whole wide world.

HEALTH NOTES
BY
A. I. ROOT

ELECTROPOISE, OXYDONOR, ETC.

There are still a few who urge that, so long as the above traps do good, why not let them alone? on the principle that, "where ignorance is bliss, 'tis folly to be wise." To all such, let me put it this way: A counterfeit ten-dollar bill may do good. It may pay honest debts, purchase needed food, clothes, etc. Then why not let it alone? *Because it is a counterfeit.* And in a like manner, Electropoise, Oxydonor, etc., are counterfeits. I am sure I have given sufficient proof of this. The venders put Electropoise out with the claim that it is a scientific apparatus. It is not scientific, and it is not an apparatus. Their claims are lies, just as much as is the claim of the man who says the counterfeit bill he manufactured is a good one. Am I not right?

THE INTERNAL WATER CURE.

Mr. A. I. Root:—As I have been benefited by your Health Notes, I feel impelled to contribute an idea that may be of help to others. Having suffered all my life from congenital hernia I am constantly on the lookout for any thing that will relieve constipation. Your idea of a tube and a bucket of water was at once tried, and found to be a great help at times. I soon found, as you did, that I sometimes needed something to reach the higher bowel. Then I began experimenting with hot water, salt water, cold water, etc., without any benefit. Then I procured a longer tube and raised the bucket, and found at once I had just what I wanted. As it required more water I use a gallon bucket and a seven-foot tube. Fasten the tube to one ear of the bucket so it can't pull out, and place a cushion of several thicknesses of cloth on the edge of the bucket under the tube. There is an advantage in having the water a little more than blood warm. Fill and empty the colon once or twice before expecting it to go higher, and at the third filling it will nearly always enter the higher bowel without any unpleasant pressure. This is, I think, much safer than to try to use a colon-tube.
A. C. B.

Friend B., I omitted to state that I always use a tube about 6 feet long. I have often thought that, in stubborn cases, one 10 or 12 feet long might be an advantage, raising the bucket as high as the tube will allow it to go, in order to get more pressure. Many thanks for your contribution.

Special Notices by A. I. Root.

THAT FIFTEEN-ACRE FARM NEAR PHILADELPHIA.

We are getting material ready for a valuable write-up, and hope to have it ready for our next issue. So be patient, friends.

We have been advised by the successors of our vegetable seed business, E. C. Green & Son, of this place, that they are much pleased with the way in which our old customers are favoring them with their orders. They have received many letters of praise for the strains of seeds that we carried.

They have succeeded in obtaining a fine new bean which they intend to catalog the coming year. It is now being sent out to their customers free, with a general order for seeds they sell, on advance trial. We would advise our friends to send their order at once and request a trial package of the bean, for the stock is limited.

THE HAND POTATO-PLANTER OF THE GRAND TRAVERSE REGION.

The manufacturers of this little planter (see advertisement in this issue) are sending out a book that not only tells how to use the planter, but it is quite a treatise on potato-growing, and ought to be in the hands of everybody who grows potatoes, even if he does not have more than a little patch of early potatoes in his garden. I believe many people could plant their potatoes cheaper and better than to use a horse, even if the horse is standing idle in the stable, providing they once took a little pains to know how to use the implement. In the Grand Traverse region every man, woman, and child handles the planter as easily as you would a hammer or ax. They know how to use it from childhood up.

Of course, we furnish the hand potato planter just as we have for years past, either singly or by the dozen.

Write to-day for a free copy of the book, addressing them as follows: Potato Implement Co., Box 20, Traverse City, Mich., mentioning this paper.

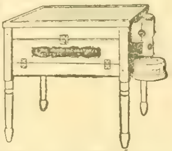
Greider's Fine Catalog

of Prize-Winning Poultry

for 1904. This book is printed in different colors. Contains a Fine Chromo of life like fowls suitable for framing. It illustrates and describes 60 varieties of poultry, ducks, geese, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and such information as is of much use to all who keep chickens. Prices of eggs and stock with in reach of all. Send 10 cents for this noted book.

B. H. GREIDER, RHEEMS, PA.

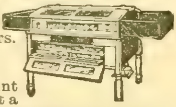
BUILT TO LAST



Never outclassed—**Sure Hatch Incubators.** Built better than your house. No hot centers; no chilling draughts on sensitive eggs. Every cubic inch in egg chamber at uniform, blood temperature of fowl. It's a continual pleasure to hatch nearly every fertile egg with a Sure Hatch. Free catalogue C 0 with pictures tells lively story.

SURE HATCH INCUBATOR CO.
Clay Center, Neb. Indianapolis, Ind.

CHICKS THAT LIVE



get strong and healthy—gain steadily in weight, are chicks hatched in Reliable Incubators.

The Reliable

provides automatically a constant current of odorless, warm air at a uniform temperature—chicks pip, hatch and thrive under its nature-like conditions. Send 10 cents and get our 20th annual catalog—full of poultry information.

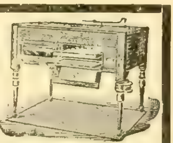
Reliable Incubator and Brooder Co., Box B-49, Quincy, Ill.

"VICTORIOUS IOWA"

A good name for the Iowa Round Incubator that so often out-hatches its keenest competitors. Any questions? Our new catalogue answers them all. It is free—send for it.

Iowa Incubator Co.
Box 197, Des Moines, Ia.

All Business



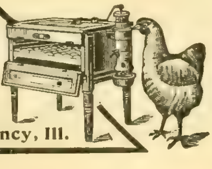
No hazard, no experimenting. You hatch the most and brood the best with

The Successful

Both incubator and brooder have proven their way. Prompt shipment of Eastern orders from our Buffalo house Incubator Catalog free, with Poultry Catalog 10 cts.

Des Moines Incb. Co., Dept. 503, Des Moines, Ia.

$12.80 For 200 Egg INCUBATOR



Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

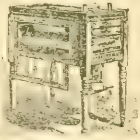
GEO. H. STAHL, Quincy, Ill.

CYPHERS' MODEL INCUBATORS

"Model" is the name that should be on the Incubator and Brooder you buy this season. Why? They're made by Cyphers—the man who has built the most successful, world-famous hatchers. The free catalog will interest you. Write for it now and learn how to make money.

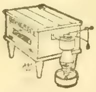
CHAS. A. CYPHERS, 39-47 HENRY ST., BUFFALO, NEW YORK

20 YEAR GUARANTEE



Goes with the old original **Prairie State Incubators and Brooders. U. S. Government uses them exclusively.** Have won 382 first prizes. Our free catalog interests poultry raisers. Send for it.

PRAIRIE STATE INCUBATOR CO.
Homer City, Pa.



This is the Limit

A Hot Water, Self-Regulating, 50 egg Incubator $4.50. $3.00 and up for Brooders. All on **30 DAYS' TRIAL.** No agents. You pay no middlemen's profits. See catalogue for "100% Hatches." Write

BUCKEYE INCUBATOR COMPANY., Box 64 , Springfield, Ohio

POULTRY SUCCESS.

14th Year. 32 TO 64 PAGES.

The 20th Century Poultry Magazine

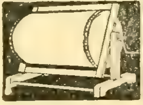
Beautifully illustrated. 50c yr., shows readers how to succeed with Poultry.

Special Introductory Offer.

3 years 60 cts; 1 year 25 cts; 4 months trial 10 cts. Stamps accepted. Sample copy free. 148 page illustrated practical poultry book free to yearly subscribers. Catalogue of poultry publications free.

Poultry Success Co., Dept. Springfield, O.

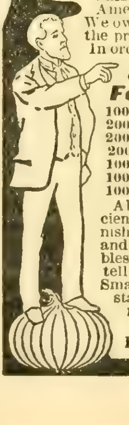
This Lightning Lice Killing Machine



kills all lice and mites. No injury to birds or feathers. Handles any fowl, smallest chick to largest gobbler. Made in three sizes Pays for itself first season. Also *Lightning Lice Killing Powder, Poultry Bits, Lice Murder, etc.* We secure special low express rates. Catalog mailed free. Write for it.

CHARLES SCHILD, Ionia, Mich.

10,000 Plants for 16c



More gardens and farms are planted to Salzer's Seeds than any other in America. There is reason for this. We own and operate over 5000 acres for the production of our warranted seeds. In order to induce you to try them, we make you the following unprecedented offer:

For 16 Cents Postpaid

1000 Early, Medium and Late Cabbages,
2000 Delicious, Carrots,
2000 Blanching Celery,
2000 Rich Nutty Lettuce,
1000 Splendid Onions,
1000 Rare Luscious Radishes,
1000 Gloriously Brilliant Flowers.

Above seven packages contain sufficient seed to grow 10,000 plants, furnishing **bushels of brilliant flowers** and lots and lots of choice vegetables, together with our great catalog, telling all about Flowers, Roses, Small Fruits, etc., all for 16c in stamps **and this notice.** Mammoth 140-page catalog alone, 4c.

JOHN A. SALZER SEED CO.,
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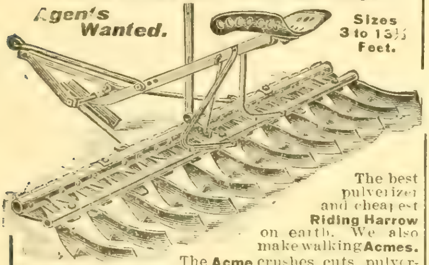
ACME Pulverizing HARROW
Clod Crusher and Leveler

Agents Wanted.

Sizes 3 to 13½ Feet.



The best pulverizer and cheapest **Riding Harrow** on earth. We also make walking **Acmes.** The **Acme** crushes cuts, pulverizes, turns and levels all soils for all purposes. Made of cast steel and wrought iron—**Indestructible.**

Sent on Trial To be returned at my expense if not satisfactory. Catalog and booklet **"An Ideal Harrow"** by Henry Stewart mailed free, I deliver f.o b. New York, Chicago, Columbus, Louisville, Kansas City, Minneapolis, San Francisco.

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worms and all kinds of vegetable insect pests if you use our

Acme Powder Gun The simplest and most effective device for applying dry poison to Potatoes, Tobacco, etc. Works under as well as over, dusts every part of every leaf. Uses less because it wastes none. If your dealer don't have it send his nane and **$1.00; we'll deliver charges paid.** Write for Catalogue and Booklet, "The Acme of Potato Profit." **Potato Implement Co., Box20, Traverse City, Mich.**

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Covering the four Great Departments of Gardening Mailed FREE to all buyers of Garden Seeds, Flower Seeds, Greenhouse Plants, Shrubs and Hardy Plants. WRITE NOW.

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SPRAYING brings fruits and flowers. We make the right appliances. Special adaptation to every need.

HAND, BUCKET, BARREL KNAPSACK and POWER SPRAYERS.

20 styles. Nozzles, hose, attachments, formulas, every spraying accessory. Write for free catalog.

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DIRECT WIRES To Wealth

The farmer who is making the most profit now-a-days is the farmer who is making the most of modern equipment. In this he'll find

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direct wires to wealth. The reasons for this are tersely told in our book F-36 "Telephone Facts for Farmers," sent free. Address nearest office.

Stromberg - Carlson Tel. Co.
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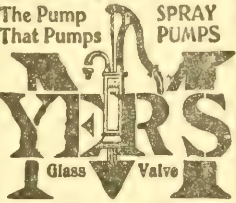
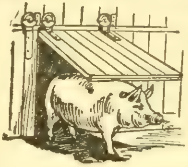


Double-acting, Lift, Tank and Spray **PUMPS**

Store Ladders, Etc.

HAY TOOLS of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers



with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
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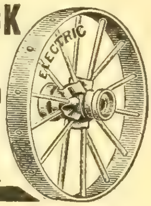
SAVE YOUR BACK

Save time, horses, work and money by using an

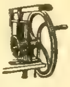
Electric Handy Wagon

Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free. Electric Wheel Co. Bx95. Quincy, Ill.



THE 4-LEAF CLOVER *Cream Raiser.*

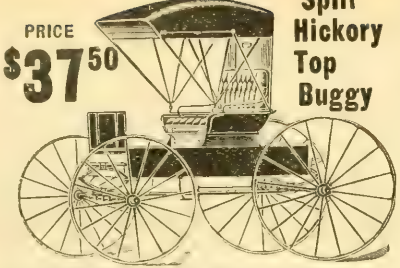
Don't mix. Has utmost cooling surface. Inner can quickly removable. No water needed in winter. Cold air chamber over whole can. Very easy to clean. Patent faucets and many other desirable features described in our **FREE** catalogue. **PLYMOUTH MFG. CO., Plymouth, Ohio.**



THE CROWN Bone Cutter for cutting *green bones.* For the poultryman. Best in the world. *Lowest in price.* Send for circular and testimonials. **Wilson Bros., EASTON, PA.**

The Split Hickory Line

of Top Buggies, Driving Wagons, Runabouts, Phaetons, Carriages, Spring Wagons and Carts comprise the latest and best in workmanship and quality. A Split hickory name-plate on your vehicle means that you have absolutely THE BEST MADE.



NO. 4039—This is a good, strong, substantial buggy and not to be compared with the cheap, inferior buggies offered at the same or lower prices. Equal quality sells at retail for from $50.00 to $60.00. It is sold on **30 Days Free Trial, Satisfaction Guaranteed.**

A Few of the Many

Special Features.

Split-hickory wheels with screwed rims, round-edge steel tires set hot; long distance axles; cemented axle-beds; oil-tempered springs; choice of Bailey body-loops or wooden spring bar; 16-oz., imported, all-wool broadcloth trimming; spring cushion and spring back; genuine enameled leather quarter-top, made absolutely water-proof; reinforced back-curtain; 16 coats of paint with oil and led foundation; all woodwork carried 100 days in pure oil. Option is given of any color of gear Body can be plain or fancy striped Has full-length velvet carpet with panel carpets; 13-inch padded patent-leather dash; side-curtains; storm-apron; quick-shifting shaft-couplings; shafts have heel braces, corner-braces; 36-inch point-leathers; with round leathers at single-tree and at holdback straps. Write for our FREE 136 page catalog, which fully describes our

30 DAYS' FREE-TRIAL PLAN
And our TWO-YEAR BINDING GUARANTEE.

Many of our customers are subscribers and readers of this paper. Write the editor and ask him if he has ever had any one make a complaint as to our method of doing business. We treat our customers with absolute fairness; give better value for the money than they expect, and have thousands of testimonial letters from all over the country. We do not advertise $15 00 vehicles and then tell prospective customers that we are out of them and try to sell them a higher-priced vehicle when they write for catalogue, but advertise truthfully just what we can furnish, and every statement we make is backed up by our years of experience in dealing directly with the customer, and by our reputation for straight-forward, honest business methods.

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H. C. PHELPS, President.
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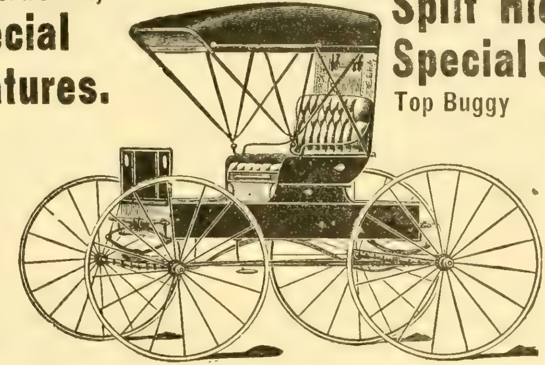
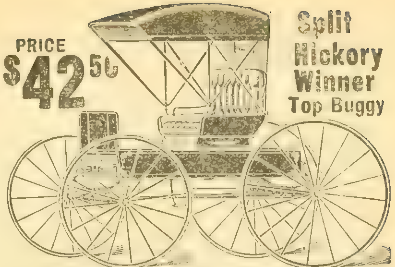
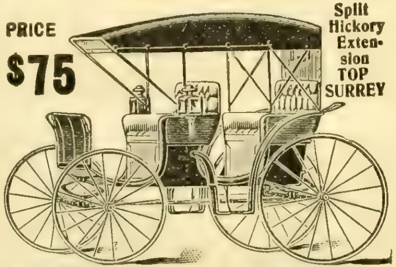


Split Hickory Special $50
Top Buggy

No. 4345—This is the best buggy in the world for strength, neatness, and comfort It is a buggy that surpasses competition, and has more special high-grade and up to date features than are found on buggies that retail for $100 00 If you want the handsomest, strongest, most complete and up-to date buggy in your neighborhood, a buggy that we will guarantee to be superior to anything you can buy elsewhere for $75 00, you will make no mistake in ordering our **Split Hickory Special.** It has 100 points of merit, only a few of which we can mention here Complete description is given in our catalogue, and many illustrations are shown of this buggy, gotten up in different combinations, as to finish, construction, etc.


PRICE
$42.50
Split Hickory Winner Top Buggy

NO. 4241—This buggy has long distance axles, quick shifting shaft couplings, double braced shafts, best SPLIT Hickory wheels, good, first-class leather quarter top, in fact, is complete in every respect and an excellent value for the money. **It is sold on 30 Days Free Trial** and guaranteed to be the equal of buggies that retail for $60. Our catalog gives full description and specifications.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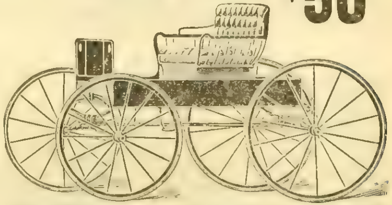
$75
Split Hickory Extension TOP SURREY

NO. 4088—This is a handsome, roomy, comfortable and substantial surrey, the seats are wide and roomy, backs are high and comfortable, it is equipped with long distance axles, quick shifting shaft couplings, oil burning lamps, genuine leather double fenders, seat sides are padded, full length water proof top and complete in every detail. Full description given in catalog, with many options as to finish.

Split Hickory Rubber Tire DRIVING WAGON $50



No. 4028—This is a very popular style, is furnished with the very best grade of solid rubber tires, roller rub irons, open head springs, padded dash, quick shifting shaft couplings, double braced shafts and everything complete It is our leader in driving wagons and the best value on the market for the money. Full description in our catalog

Walter S. Pouder. Established 1889.

Bee-keepers' Supplies.

Distributor of Root's Goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Co., and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee Smokers, Bee-veils, Pouder Honey-jars,

.........and, in fact, everything used by Bee-keepers........

Headquarters for the Danzenbaker Hive.

Investigate its merits. A 64 page book telling all about it with many valuable ideas about producing comb honey will be sent for a two cent stamp. I am anxious that you do not place your order for supplies till you have examined my new catalog. I make QUALITY and RELIABILITY of goods the main issue, as many of you know, and I have never found it necessary to cut the price in order to compete with inferior goods My prices are, however, as low as they can be made and still maintain the present high standard of quality. My business has had a wonderful growth and I am occupying larger quarters with the largest stock that I have ever carried. I take good care of my customers and that is one reason why my business grows, but, to be modest about the matter, the greatest reason for this growth can be attributed to the quality of goods that I am handling. Bee-keepers, I believe, want the best and would not be satisfied with anything else. Get ROOT QUALITY FROM INDIANAPOLIS and you will be more than satisfied. :: :: :: ::

A Sample Letter.

Newman, Ills., Mar. 11, 1904.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—Find order enclosed which you may ship as early as convenient You may wonder why I did not order more hives; I will explain to you that I bought 50 hives and a lot of sections last fall from another firm. I did this because they offered the goods at the old prices. I do not like the hives, and thought I had better return to the fold. Truly yours,

C. F. BENDER.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package.

My large illustrated catalog is free, and I shall be glad to send it to you

WALTER S. POUDER,

513-515 Massachusetts Ave., - INDIANAPOLIS, IND.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

We have files of unsolicited testimonials, but space forbids giving any here.

We employ 400 swarms in queen-rearing, the business is a specialty with us. We expect to keep 600 to 1200 queens on hand. Early in the spring, when the weather is cool queens will be shipped form the South. Parkertown, O., was our postoffice, but we have changed to Bellevue which has 13 mails each way daily. (No more of our queens will be jerked from a crane.) Our new circular now ready to mail.

ADDRESS ALL ORDERS TO

Price of Queens Before July First.

	1	6	12
Select	$1 00	$5 00	$9 00
Tested	1 50	8 00	15 00
Select Tested	2 00	10 00	18 00
Breeders	4 00		
Straight Five-band Breeders	6 00		
Palestine Queens	2 00	10 00	18 00
Two-comb Nuclei, no queen	2 50	14 00	25 10
Full Colony on eight frames	6 00	30 00	
Four fr's brood, 4 fr's fdn.	5 00	25 00	

Special low price on Queens and Nuclei in 50 and 100 Lots.

Quirin-the-Queen-Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY . . . . . .

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200

Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1.50; select tested $2.50; breeders $4.00 to $7.00.

Illustrated price list free for the asking.

W. O. VICTOR,

Queen Specialist. **Wharton, Tex.**

Choice Queens for 1904.

We are again offering queens of the best stock obtainable. All breeding-queens are selected, first, for superior honey production, and pleased customers are constantly sending in reports like the following:

Georgiana, Fla., Jan. 29, 1904.

The untested queen I got of you last March was a dandy. I raised about all my queens from her, and they are all far ahead of the common run.

LELAND BALDWIN.

Toronto Can., April 8, 1903.

I am well pleased with your stock, my ordering again is proof of their qualities. They proved gentle and were good workers. Hoping that you can fill my order, I am yours truly, THOS. AIKINS.

Untested queens of Golden or Leather Italians, or Carniolans, warranted pure, $1.00 each, $9.00 per dozen. Tested, $1.25 each, $12 00 per dozen.

GEORGE J. VANDE VORD, Daytona, Fla.

HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1904. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, $1.25; five for $5 00. Breeders of either race, $3.00 each.

W. H. Laws, Beeville, Texas.

PRINTING

1000 Note-heads, ... **$1.50**
1000 Envelopes, XXX, 6 1-2, ... **1.75**
250 of either, $1.00, postpaid. Samples and estimates FREE

Young Brothers, Girard, Pa.

CARNIOLANS AND ITALIANS.

Untested Queen $1 00; Six for $5.00; Twelve for $9.00.
Tested $1.50. Best Breeder $3.00. Imported $5.00.

Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

F. A. LOCKHART & CO.,
Lake George, - New York.

Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness.*

Italians.

Gentle prolific. swarm very little, hustlers to work, and a red-clover strain.

QUEENS! ATTENTION! QUEENS!

During 1904 we will raise and offer you our best queens. Untested, $1.00 each; $5.00 for 6; $9.00 for 12. Tested queens, $1.50 each; best breeders, $5.00 each. One, two, and three frame nuclei a specialty. Full colonies, and bees by the car-load. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy-Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18, Beeville, Tex.**

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $1.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

Tennessee Queens.

Daughters of select imported Italians, select long-tongue (Moore's), and select golden, bred 3¼ miles apart, and mated to select drones. No impure bees within three and but few within five miles. No disease; 31 years' experience. All mismated queens replaced free. Circular free. Safe arrival guaranteed.

John M. Davis, Spring Hill, Tenn.

	Price before July 1st			After July 1st.		
	1	6	12	1	6	12
Untested	$ 75	4 00	7 50	$ 60	3 25	6 00
Select	1 00	5 00	9 00	75	4 25	8 00
Tested	1 50	8 00	15 00	1 25	6 50	12 00
Select tested	2 00	10 00	18 00	1 50	8 00	15 00

OUR SPECIALTIES

Cary Simplicity Hives and Supers, Root and Danz. Hive and Supers, Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season. 32-page Catalog Free

W. W. CARY & SON, Lyonsville, Mass.

Doolittle Says:

"Be very choice of this Breeder; if ever a Queen was worth $100, she is." Then we have Breeders from our strain that gave the big yields in '94, and which some of the largest bee-keepers in Cuba say can't be beat. They swarm but little and are **honey getters.** We are breeding for **honey gatherers** more than color. We cull our cells and queens, and **warrant** queens purely mated. Prices: Select untested, $1.00; select, $1.25 tested. $1.50; select, $2 00. breeders, $3 00, $4 00, and $5 00. Circulars free.

J. B. CASE, Port Orange, Florida.

Leather Colored Italians For Sale!

Strain took first premium Minnesota State Fair, 1901 and 1902 Ready May 1st. Eight or nine frame Langstroth hives, $5.00; ten frame, $6.00 each, f. o. b. Milaca.

W. R. ANSELL, Mille Lacs Apiaries,
MILACA, MINN.

Queens for Sale

BEST Golden and Leather Colored Italian Queens. Untested, 75c each tested, $1 50 Holyland Queens, best for Southwest, $1 00 for warranted; $1 50 tested. Breeders, $3 00 to $5 00 each.

-Slone Bee Company,-
Slone, La.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.— Bees. State quantity, lowest cash price, etc. F H. **FARMER**, 182 Friend St., Boston, Mass.

WANTED—Apiary, middle North; buy or lease
C. S. **DOWNER**, Pomona, Mo.

WANTED—To do your typewriting Write me for prices. H. F. **CARL**, Zoo Park, Washington, D C.

WANTED.—To pay cash for full colonies of bees on L. frames. L. H **ROBEY**,
Worthington, W. Va.

WANTED. — Wax for White Wyandotte and Leghorn eggs, and 6-inch foundation mill.
Box 37, Altamont, N. Y.

WANTED —To exchange five-gallon can of pure honey for its equal quantity of maple syrup
W. H. **YENNEY**, Glassboro, N. J.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. **HYATT**, Shenandoah, Iowa.

WANTED.—To exchange 60 lb cans for honey, cash, or offers. No 1 at 50 cts. per case; No. 2 at 40 cts.
G. L **BUCHANAN**, Holliday's Cove. W. Va.

WANTED.- One hundred barrels of good horseradish. State price, quality, and nearest railway station. M. H. **TWEED**, 1125 Penn Ave., Pittsburg Pa.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. **HERSHISER**,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange gilt-edged extracted honey in 60 lb. cans for new maple sugar and syrup, from first runs. B **WALKER**,
3000 Michigan Ave., Flat 73 Chicago, Ills.

WANTED —To exchange for offers, a 6-horse engine, 10 horse boiler, 100-gallon copper kettle; saw-mandrel; 2 circular saws; 6-in. foundation-mill etc.
CHAS. H. THIES, Chester, Ill.

WANTED.—To exchange catalog describing the best hive in existence, a double-walled hive for only 20c extra, for your name and address
T. K. **MASSIE**, Tophet, W. Va.

WANTED —Bees in Dovetailed or Langstroth hives, full colonies in the immediate vicinity of Chicago. Write promptly, stating number of colonies offered, condition, price at which they will be delivered in Chicago, etc. **THE A. I. ROOT CO.**, Medina, Ohio.

WANTED.—To sell for $400, 100 colonies of bees with plant for carrying on the business. Plant consists of extractor, smoker, queen-excluder, honey boards, bee-escapes, extracting-combs. etc. The bees are in double-walled hives, and have been wintered on their summer stands. Easily prepared for shipment. Five minutes from railway station.
CHAS. FAVILLE, South Wales, N. Y.

Help Wanted.

WANTED.—Assistant with some experience who is willing to bach, one to three miles out. State experience and salary.
THOS. STANLEY & SON, Manzanola, Colo.

Situations Wanted.

WANTED.—Situation to start 1200 to 1800 colonies in California on contract in California.
QUEEN-BREEDER, Box 161. New Castle, Cal.

WANTED.— A position as book-keeper. Correspondence solicited. **GERNAL B. SLAWSON**,
Greenville, Mich.

Addresses Wanted.

WANTED.—Your name and address, for circular of bee-veils, veil materials, bee-gloves, and queen, cages. **ARTHUR RATTRAY**, Almont, Mich.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address **HENRY ALLEY**, Wenham, Mass.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1 00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—Black and hybrid queens, 30 cts. each.
E A. **SIMMONS**, Fort Deposit, Ala.

FOR SALE.—Red Clover and Italian Queens Send for circular, G. **ROUTZAHN**, Biglerville, Pa.

FOR SALE.—300 colonies bees, good house and seven acres alfalfa. W. C **GATHRIGHT**, Las Cruces, N. M.

FOR SALE.—140 colonies in 8-frame L. hives for $350.
T. H **WAALE**, Sara, Clarke Co., Wash.

FOR SALE —White Leghorns, extra laying strain, cockrels and hens; eggs, $1.50. Reference, bank.
P. **HOSTETLER**, East Lynne. Mo.

FOR SALE.—Single-comb White Leghorn eggs from extra laying strain. 15 $1.00 30, $1 75 100. $4.00.
C. M. **WOOLVER**, Richfield Springs, N. Y.

FOR SALE.—57 New AE5 8 fr. Root's Dovetailed hives in flat for $55.00, or 10 for $10; also 10 new 2S 8-frame supers in flat for $3 50.
R. S. **CHAPIN**, Marion, Mich.

FOR SALE.—Five-gallon square tin can used for honey, at about half price of new cans. For prices etc., address OREL L. **HERSHISER**,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—5000 L. extracting combs, in first-class condition, at 10 c each. Also 200 8-frame painted bodies at 25c.
H. & W. J. **MANLEY**, Sanilac Center, Mich.

FOR SALE.—Leather-colored Italian bees, with a tested queen in each colony, at $6 00 per colony. Good strong swarms. In lots of ten. $5.00 each. No disease. F. A. **GRAY**, Redwood Falls, Minn.

FOR SALE —New empty redwood hive bodies for 10 L. frames, 30 c. each; Dovetailed sugar-pine bodies, 28c each; also Hoffman frames. H. **VOGELER**,
210 Davis St., San Francisco, Cal.

CLUBBING OFFERS — Modern Farmer, Western Fruit Grower, Vick's Family Magazine or Poultry Gazette, and GLEANINGS, all for $1 00. First three 50 cents. Write for others. Modern Farmer, St Joseph. Mo.

FOR SALE.—Apiarian outfit of small house and acre of land with 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00. and accessories at one-half list price; combs 20c a square foot. **X Y Z, GLEANINGS.**

FOR SALE.—A limited amount of ginseng sets.
C. G. MARSH, Kirkwood, Broome Co., N. Y.

FOR SALE.—Two-frame nuclei pure Italian bees with tested red-clover queen, $2.25 each.
Address W. J. FOREHAND,
Fort Deposit, Ala.

☛**FOR SALE.**—My apiary outfit consisting of Dovetailed-hive bodies filled with frames of comb; honey and wax extractors, comb-buckets, and other fixtures. Will fill orders as received until sold. Saw mill well located almost new. Also good farm well located. All for sale cheap. B. J. CROSS, Auburn, Alabama.

FOR SALE.—An apiary and farm, consisting of 120 acres good grazing land, and only fifteen minutes' walk from the city of Cardenas, and on the public road; having on said place 350 hives (American system), all necessary supplies to handle these, good house on grounds, numerous fruit-trees, plenty of shade for bees, thirty odd head of cattle raised on the place, among these six fine American milch cows (Holstein stock) selling nice little amount of milk daily, good-riding saddle-horse, ox wagon with fine yoke oxen in fine condition, two good water wells, large pine-apple grove now producing, and with capacity to plant, if required, 60 000 henequen plants. Sell for cash, or on time with satisfactory guarrantee. Address
AMERICAN BEE HIVE, P. O. Box 41, Cardenas, Cuba.

SPECIAL NOTICE
Special Notices
By Our Business Manager.

A BRANCH OFFICE IN NEW YORK CITY.

In order to give better attention to our large export trade, and to serve better the local trade of the vicinity of New York, we have just opened an office at 44 Vesey St., where we will have a full line of supplies within a few days. Our friends in New York and visiting bee keepers are invited to call there, see our stock, and make the acquaintance of our Mr. F. H. de Beche. We are only a block and a half west of Broadway, and one below the postoffice.

AIKEN HONEY-BAGS.

We did not include these bags in our catalog this year because we wanted to see them more generally tested in different sections of the country, and proven a satisfactory package everywhere before doing so. We are prepared to supply them, and have arranged for a 1 lb. size in addition to the four other sizes sold heretofore. We are not yet supplied with the 1 lb. size, but expect to have all five sizes in abundance by June at the latest. We have orders in for 175 000 bags, and the prices in various quantities will be as follows:

1-LB. SIZE, 3½x5½.

100	$ 65	1000	$5 50
500	3.00	5000 @	5.25

2 LB. SIZE, 5x7½.		5-LB. SIZE, 7x10.	
100	$ .80	100	$ 1 20
500	3 75	500	5.50
1000	7 00	1000	10 50
5000 @	6.60	5000 @	10 00

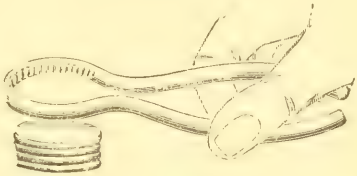
3½ lb. SIZE, 6x9½.		10 lb. SIZE, 10x10½.	
100	$1 00	100	$ 1 50
500	4 75	500	7.00
1000	8 75	1000	13 50
5000 @	8.25	5000 @	13 00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2 00; with ten different names $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10 000 or over. We have some plain 2-lb. size of dark drab paper which we can furnish plain at $2 00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

CAN-SCREW WRENCH.



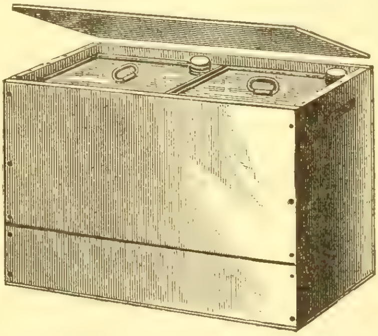
Many have had trouble in loosening the cap on can-screws, and have felt the need of an effective wrench for the purpose. Here we have it, as shown in cut above. We are having a supply made, and will be prepared soon to furnish them at 10c each, to fit 1¾-inch can screw. The same size may be bent so as to work on 1⅝ and possibly on 1½ inch screws. Postage extra, 3c when sent by mail.

EXTRACTED HONEY.

We keep on hand a large stock of extracted honey from different sources, and are prepared to supply at the prices shown below. The following flavors are usually in stock.

PACKAGES.

By far the largest part of our honey comes put up in the 60 lb. square tin cans, two cans in a case. We also get some in kegs and barrels. We agree to furnish it only in such packages as we happen to have. Unless you find price quoted for different packages, it is understood that we furnish only in 5-gallon and 1-gallon cans.



PRICES.—F. O. B. MEDINA, CHICAGO, OR PHILADELPHIA

Kind.	In single five-gallon cans.	1 case of 2 five-gallon cans.	10 cases of 2 five-gallon cans.	In one-gallon screw-top cans.	Case of 6 or 10 one-gallon cans.
	per lb	per lb	per lb	per gal	per gal
White Clover	8½	8	7½	1 20	1 10
Basswood	8½	8	7½	1 20	1 10
Alfalfa	8½	8	7½	1 20	1 10
Orange	7	6½	6	1 10	1 00
Amber	6½	6	5½	1 00	90

. . Bee-Keepers' Supplies . .

Berry-Boxes, Lock-Cornered and Mailing Boxes, Etc.,

—MANUFACTURED BY—

J. J. Bradner, Marion, Grant Co., **Ind.**

Orders filled promptly. Send for catalog.

Pacific Coast Buyers

are directed to the announcement that

SMITHS' CASH STORE (Inc.)

25 Market St., San Francisco, California,

carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundation, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added This saves buyers $1 50 per 100 pounds in freight, or 36c on each hive.

NOT IN THE TRUST.

The oldest bee-supply house in the East. Sells the BEST GOODS at former prices.

Send for Catalog.

J. H. M. COOK,

70 Cortlandt St., New York City.

Succeeded to the business of A. J. King, Dec. 14, 189 .

When You Need Queens

and want your order filled by return mail, with the BEST queens that money can buy, we can serve you. Our queens are large, healthy, and prolific, from our reliable strain of three-band Italians, which all bee-keepers know to be the honey gatherers. Our queens are ALL select. Choice tested queens $1 00 each; $12.00 per dozen; untested queens 75c each, $8.00 per dozen.

Send for price list.

J. W. K. SHAW & CO.,

LOREAUVILLE, Iberia Parish, LOUISIANA.

QUEENS FOR 1904 Try my strain of three and five banded queens; untested, in April and May, $1.00 each; six for $5.00. Tested, in March and April, $1.25 each; six for $7.00. Orders by return mail. Am booking orders for early delivery. Sold 1800 last year. Can fill all orders, no matter how large.

DANIEL WURTH, Karnes City, Karnes Co., Texas.

Mention GLEANINGS in your order.

BEE-KEEPERS' SUPPLIES FOR KANSAS

Bee-hives, honey, sections, comb foundation and such other articles used in the apiary. *Write for price list.*

A. W. SWAN & CO. Centralia, Kan,

Our Ten-Thousand Dollar

Bee keepers' supply manufacturing plant is ready for business. *Send for price list.*

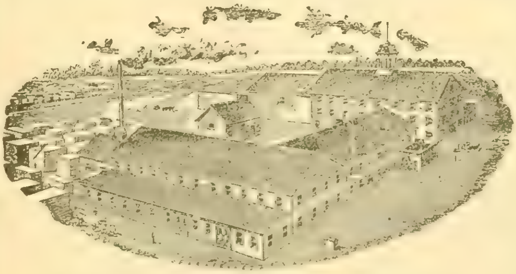
MONDENG MFG. COMPANY,

147-149 Cedar Lake Road, Minneapolis, Minn.

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



KRETCHMER MANFG. CO.

Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

WRITE AT ONCE FOR CATALOG.

AGENCIES.

Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

More Room, More Stock

We now occupy the greatest floor space, and carry the largest stock of goods, that we ever did before. Our specialty is

Wholesale and Retail

Lewis' Goods

AT

Factory Prices.

Dovetailed hives, Wisconsin hives, Champion Chaff hives, Improved Langstroth Simplicity hives, and our new hive which we call the Acme hive. Thousands of pounds of comb foundation; millions of sections in about 30 different sizes and styles, and everything the bee-keeper needs.

Also a full line of Hoosier Incubators and Brooders.

Do not fail to find out all about

THE ACME HIVE.

Hundreds of them already sold, this year. Catalogs and plenty of information free.
Let us estimate on your order.

C. M. Scott & Co., 1004 E Washington St **Indianapolis, Ind.**

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Special Notices By Our Business Manager

Somehow the report got out that The A. I. Root Co.'s manufacturing plant had burned, and we are beginning to hear from our agents and dealers. We are very glad to inform our readers that it is a mistake; that our plant is intact, and is operating in every department full blast and over time. We have had no fire for about a year, and even that did not delay us for more than two hours.

THE HUBBARD BEE-HIVE CO.

This company, who succeeded G. K. Hubbard at Fort Wayne, Ind., and manufactured the Hubbard hive, burned out a few weeks ago; and, not wishing to rebuild, they have sold out to us their business and good will. All letters addressed to them are forwarded here. We are not prepared as yet to supply the Hubbard hive, as we are too much crowded with orders for our regular styles, but shall be pleased to furnish their customers with such goods as we are prepared to supply.

COMB FOUNDATION MACHINES.

We have some improvements in comb foundation machines to offer at this time. We have had under construction for a year or two past a new machine for cutting the rolls of the foundation mills automatically. This machine is built much stronger and heavier than the old one; and while requiring less attention on the part of the operator, it will do more accurate work and do it in less time.

But the most important new feature which we have also developed in connection with the new machine is the punch which forms the cell formers on the rolls We are able with the new punch to get a more perfectly shaped cell with base of uniform thinness, and as near the shape of natural comb as it is possible to attain. Moreover, there is no sharp ragged edge left on the cell-formers, so that the foundation comes from the rolls much more freely than from mills made with the old style punch. All mills numbered from 3000 and up are made with the new-style punch.

PERFORATED ZINC.

We have built an entirely new machine for perforating queen-excluding zinc and have a carload of sheet zinc already on hand to use in the new machine. It will take sheets 32 inches wide, where the old one takes 28-inch zinc. The new sheets will be 32×96 instead of 28×96, and will go in at the same price. The holes are a little closer together; in fact, just as close as the old Tinker zinc. We have had an increasing number of orders for boards 16×20; and as we had to pay extra for sheet zinc 28 inches wide over that which is 32, we decided to build the new machine wide enough to take 32 inch zinc. We expect to have smoother perforations. We do not exactly reduce the price, but, rather than change the basis of prices at this season we donate the extra 4-inch strip on full sheets reserving the right to fill orders out of stock with 28×96 so long as stock in the hands of our dealers lasts. Boards 16×20 will be $1.60 for 10. Other regular sizes listed are not changed in price.

BUSINESS COMPARISONS.

Business continues to increase, as shown by a few comparisons. In the three months of this calendar year we have shipped 58 carloads against 49 during the same period last year. Total cars to April 1, this year's business, from Sept. 1, 100 against 85 in the same time last year. The middle West has taken the most of this increase We have shipped 2 cars this year against one last year into Kansas; 5 against 2 into Missouri; 7 against 2 into Iowa; 9 against 1 into Chicago; 4 against 3 into Indiana; one extra to Cincinnati, O., and Bell Branch, Michigan, and 10 against 3 into Southwest Texas.

In spite of this increase in shipments we have more unfilled carload orders than we had the same date last year.

We have made to date, from Sept. 1, over 13 million sections, against about 7 million last year, and 84,000 lbs. of foundation against 74,000 a year ago.

We are right up with orders on sections and foundation and have some surplus of both ahead of orders. It is hives and supers which are crowding us most, and holding back orders. In spite of the advice to have your hives made at home, and the fact that more than usual have followed that advice, still we have not been able to turn out hives fast enough to fill orders promptly. For several weeks we have been short on dry basswood for sections, but we were fortunate in having a large stock to draw from in filling orders. Dry lumber engaged has been prevented from coming forward because of the excessive snow in Michigan. The new cut is now nearly dry enough to work, and we never had a larger or nicer lot of white basswood than we have secured this year, right here in Ohio. We are also well supplied with a large stock of dry pine for hives, and are pushing things to our utmost to get the goods out to those in need of them.

SECOND-HAND FOUNDATION-MILLS.

We have the following list of second-hand foundation-machines to offer. To any one interested we shall be pleased to mail a sample made from any one of these machines on application.

No. 057 2½x14 hexagonal medium-brood mill. This has been used in our wax-room; has some slight blemishes in the rolls which mar the looks of the foundation a little, but do not injure it for use in the hive. Price $20

No. 056, 2½x14 light-brood mill; of same description, but for a lighter-weight foundation. Price $20.

No. 055, 2x10 Pelham mill. This is a nearly new machine, but the cells do not have a natural base, and for that reason this make of mill is not desirable. Price $7.

No. 2275, 2½x6 hexagonal extra-thin-super mill, in good condition Price $15.

No. 058, 2½x6 hexagonal thin-super mill, in good condition; has been used in our wax-room, and taken out to make room for a wider mill Price $15

No. 059, 2½x6 hexagonal extra-thin super mill, in good condition. Price $15.

No. 13, 2x6 hexagonal extra-thin-super mill, in excellent condition except for one crushed cell. Price $12.

No. 014, 2x6 hexagonal extra-thin-super mill, in good condition, with one bad cell. Price $12.

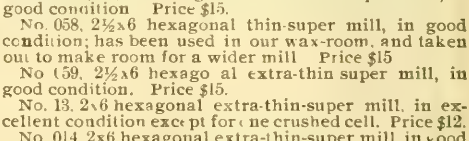
No. 037, 2x6 hexagonal extra-thin-super mill, in fair condition; cells somewhat pitted. Price $8

No. 2132, 2x6 hexagonal extra-thin-super mill, in good condition. Price $10.

No. 061, 2x10 hexagonal medium brood mill of late pattern, in good condition except that a few of the cells on upper roll are scratched some, but not enough to be very noticeable in the foundation. Price $14.

H S M FENCE.

We have gone to an expense of over $200 in dies and tools for making Danz. M fences with cross slots as shown below The great advantage of this form of fence over the ordinary one with wooden cross-cleats is the free communication around the edges of the sections, insuring a comb filled out full to the side as well as at top and bottom. The freer communication allowed to the bees encouraged them to work more freely in the supers fitted with these fences. Much the larger proportion of sections used in Great Britain are open 4 sides, and used with cross-slotted separators, permitting side communication and insuring better-filled sections. The tin cleats on the H. S. fence have a raised boss at the top and bottom to act as a spacer for the plain sections. This is the same idea brought out in 18[illegible]8 by Hyde and Scholl, of Texas, but the form was not perfected till this year. We have supplied for use in Southwest Texas this year over 8000 of these fences fitted in Danz. supers. They are worth $5 00 per 100 or Danz. 2 M or 4 M supers will be fitted with these H S M fences at 15 cts. each extra for this season to those who wish to try them. We are not prepared to furnish this style of fence for the 4¼×4¼ sections. This would require a new set of dies. We want to see them thoroughly tested this season with 4×5 sections in Danz. supers.



SPECIAL ATTENTION

SHOULD NOW BE

GIVEN TO YOUR QUEENS.

YOUR SURPLUS HONEY

Will Depend on the Age and Quality of the Queen Mother.

KNOWING how much depends on having such queens as can be relied on to produce honey, we use extra care in the selection of our breeding stock. Selected queens are given one year's trial in our outyards, and those only are used for breeding that have shown a marked superiority in the yield of surplus honey. Tested and select tested queens can be had on receipt of order, and nuclei and untested queens by April 1.

We give special attention to the shipment of nuclei and our large apiaries enable us to supply them in any quantities promptly. One pleased customer says: "The bees came on the 27th, and they are simply elegant."

For prices of bees, queens, hives, and other supplies, send for our 64-page catalog.

J. M. JENKINS,

WETUMPKA, - ALABAMA.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

FIRE

Our entire stock was not destroyed

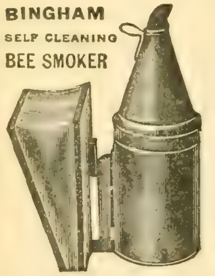
Warehouse escaped with full line of Bee-keepers' Supplies. Foundation-machinery now running full capacity, and back orders nearly filled. Send in your order and it will receive our prompt attention. :: :: :: ::

Retail and Wholesale.

Send at once for catalog with prices and discounts. Working wax into foundation for cash, a specialty. Ask for samples. *Beeswax always wanted, at highest prices.*

GUS DITMER, Augusta, Wisc.

FIRE



Bingham Smokers

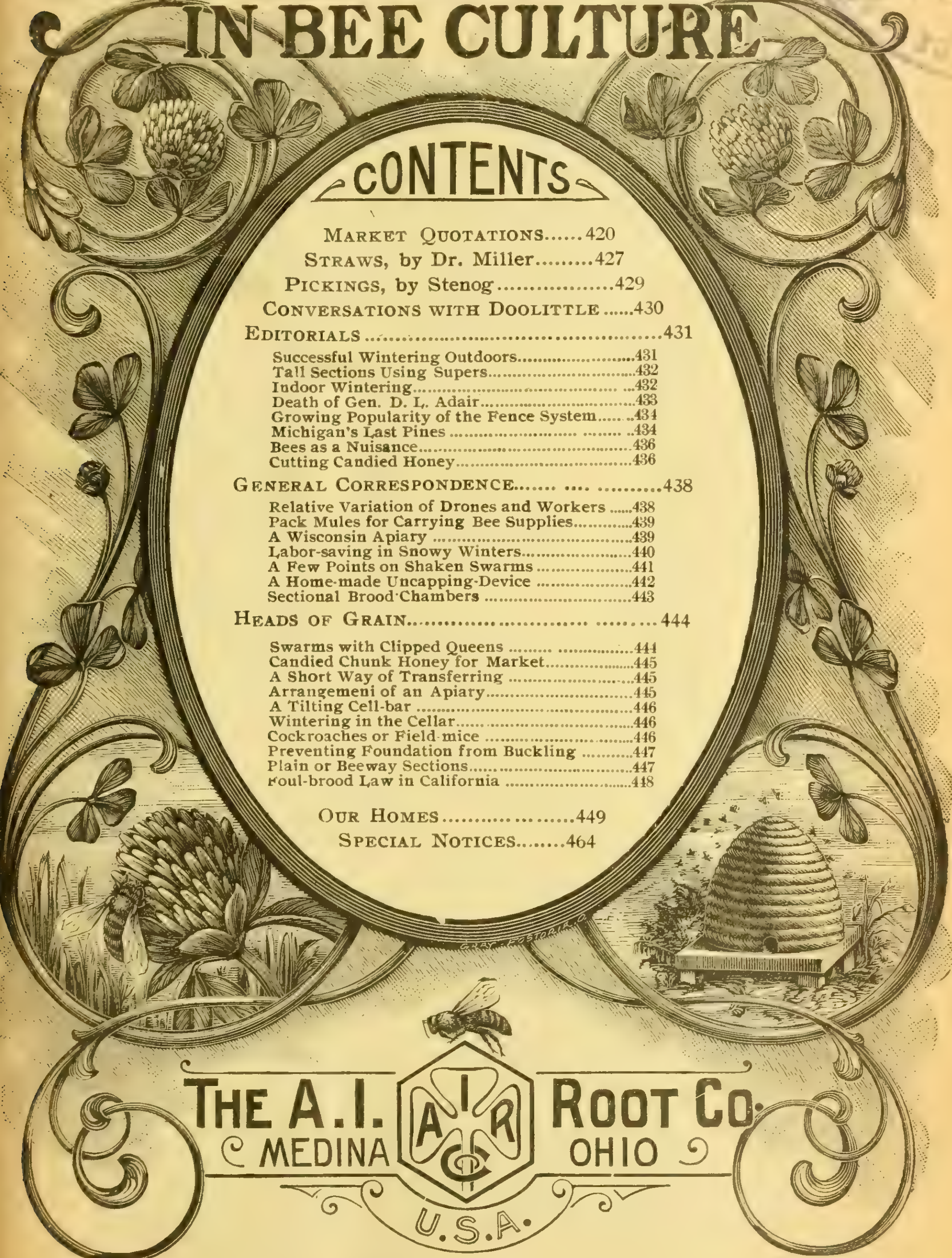
Bingham Smokers are the originals, and have all the improvements, and have been the **Standard of Excellence** for 23 years. No wonder Bingham's four inch Smoke engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine. 4 inch stove, per mail, $1.50; 3½ inch, $1.10; 3 inch, $1.00; 2½-inch, 90 cents; 2-inch, 65 cents.

T. F. Bingham, Farwell, Mich.

Volume XXXII. MAY 1, 1904. Number 9

GLEANINGS IN BEE CULTURE



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MEDINA OHIO
U.S.A.

Eastern Edition.

Entered at the Postoffice, at Medina, Ohio, as Second-class Matter.

FLOOD WATER

MARCH 26 to 31, we had from two to four feet of water in our warehouses. As a result, we will sell

Sections, $1.00 A THOUSAND

less than catalog prices. Foundation at 5 cents per pound less than listed prices. Special prices on 25 and 50 pound lots. These prices good only as long as the wet goods last.

WE HAVE PLENTY DRY GOODS IF YOU PREFER THEM. . . . .

Write for particulars.

LEWIS C. &
A. G. WOODMAN,
Grand Rapids, - Mich.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

Beeswax wanted.

George E. Hilton, Fremont, Mich.

Any man in Michigan that keeps bees — one swarm or five hundred, — is the man we are looking for.

Are you that man?

Our catalog for the asking.

M. H. Hunt & Son.
Bell Branch, Mich.

we sell the Danz Hive Send for booklet.

we sell Root's Goods in Michigan

C. H. W. Weber,
Headquarters for
Bee-Supplies
Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

I Shall be Pleased to Book Your Order for Queens; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above.

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white, and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,
Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

Philadelphia.—Never in the history of the comb-honey market has there been such a lot of off-quality of comb honey shipped into this market so late in the season. We have sold some of our own honey in the last few days, good No 1, as low as 6c a section, the same honey we were getting 14c for 60 days ago. It is the old story, that when bee-men find the season closing, and they can not get rid of the crop themselves, they send it to the commission man to slaughter it at any price he can get. We quote No. 1 comb, 10; amber, 7@8; extracted fancy white, 7½; amber, 6. Beeswax sells readily at 31. We are producers of honey, and do not handle on commission.

Wm. A. Selser,
April 21. 10 Vine Street, Philadelphia, Pa.

Cincinnati.—The honey market here is re-assuming activity, and, judging from present indications and the lateness of the season, the last season's crop will be consumed before the arrival of the new. We offer amber extracted in barrels and cans at 5½@6½; white clover, 6½@8, according to quality and package; fancy comb honey sells at 12@15. Beeswax wanted at 30c.

The Fred W. Muth Co.,
April 18. 51 Walnut St., Cincinnati, Ohio.

Kansas City.—The demand for honey is a little better than it has been. Prices on strictly fancy comb are $2 50 per case, if not candied; the great trouble with the majority of honey coming from the West at present is that it is more or less candied and about $2 to $2 25 is all we can get for it. Amber is selling at $2 25 per case; extracted is dull at 5@6. Beeswax is in good demand at 30c.

C. C. Clemons & Co.,
April 18. Kansas City, Mo.

New York.—There are no new features in the honey market. Some white honey selling at from 12@13; off grades at from 10@11; no demand for dark honey whatever. Market is very quiet on extracted of all grades, and prices are rather irregular. Beeswax very firm at 29@31.

Hildreth & Segelken,
Apr. 18. 265-267 Greenwich St., New York.

Milwaukee.—There's certainly somewhat of a problem to be solved as regards this market on honey in common, with some others, and that is, will the great people eat and consume all the honey so richly provided? While there is certainly increased consumption, there is not enough to take all so far, and the supply continues in excess of demand. The continued cold helps, and the probability that the winter killed many bees, may have the effect to put more value upon the surplus stock of honey We are hopeful of favorable results. We quote fancy 1-lb sections, 12@13; all qualities below fancy, nominal, 10@11. Extracted in barrels, pails, cans, 6½@7½. Beeswax, 28@80.

A. V. Bishop & Co.,
April 23. Milwaukee, Wis.

Cincinnati.—The honey market continues to be dull; if any thing, the prices on comb honey are lower; concessions are made on bigger lots. I quote fancy white comb from 12½@14. Sales on extracted are made at the following prices: Amber in barrels, 5¼@5¾; in cans, ½c more. Alfalfa, water-white, 6@6½; strictly white clover for extra fancy, 7½@8. Beeswax. 30.

C. H. W. Weber,
April 19. 2146 Central Ave., Cincinnati, Ohio.

Denver.—There is sufficient stock in this market to meet the local demand. No. 1 white, $2.50@2.75 per case of 24 sections; No. 2 white, $2.25@2.40 per case of 24 sections. White extracted, 7@7½. Clean yellow beeswax wanted at 28@30 cents per pound, according to color.

The Colo. Honey Producers' Ass'n.,
April 19. 1440 Market St., Denver, Colo.

St. Louis.—The stock of fancy comb is very small, and quotable at 13@14; A No. 1 at 11@12; No 1, at 10@11; No. 2, nominal 9; No. 3, 6@7. All sugared honey, or otherwise defective or broken, is not salable above 6@7. Extracted honey is quotable at 5@5½ in cans; 4@4½ in barrels.

R. Hartmann & Co,
April 18. St. Louis, Mo.

San Francisco.—New comb per lb., white, 10@12; amber, 8@10; Extracted, water-white, 5½@6; light amber, 5@5½; dark amber, 4½@5 Beeswax, 28@30.

Ernest B. Schaeffle,
April 22. Murphys, Cal.

Boston.—There is nothing new to note, either regarding the condition of our honey market or prices. The demand is naturally not so heavy as it was, owing to the warmer weather and the near approach of the maple-sugar season. Prices remain as before.

Blake, Scott & Lee,
April 21. Boston, Mass.

For Sale.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.

G. W. Wilson, R. R. No. 1, Viola, Wis.

For Sale.—I have a few more cases of comb honey (mostly buckwheat), which I will offer at a reduced price to close out.

N. L. Stevens, R. D. 18, Moravia, N. Y.

BEE-SUPPLIES EXCLUSIVELY.
A COMPLETE LINE OF
Lewis' Fine Bee-Supplies, Dadant's Foundation Bingham's Original Patent Smokers and Knives, Root's Extractors, Gloves, Veils, Etc.
Queen Bees and nuclei in season. In fact, anything needed in the "Bee-line," at FACTORY PRICES HERE IN CINCINNATI, where prompt service is yours and freight rates are lowest.
Special discounts for early orders. SEND FOR CATALOG.
THE FRED W. MUTH CO.
We are successors to nobody and nobody is successor to us.
51 WALNUT STREET. CINCINNATI, OHIO.

For Sale.—Thirty barrels choice extracted white-clover honey. Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. **Emil J. Baxter,**
Nauvoo, Hancock Co., Ill.

For Sale.—Fancy basswood and white-clover honey; 60-lb. cans, 8c; 2 cans or more, 7½c; bbls., 7½c.
E. R. Pahl & Co., 294 Broadway, Milwaukee, Wis.

For Sale.—2400 lbs. of white-clover honey. Write for prices. **W. E. McDonald,** Woodford, Wis.

Wanted.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us. **Evans & Turner,**
Columbus, Ohio.

Wanted.—Beeswax; highest market price paid. Write for price list.
Bach, Becker & Co., Chicago, Ill.

Wanted—Comb and extracted honey. State price, kind, and quantity. **R. A. Burnett & Co.,**
199 South Water St., Chicago, Ill.

Wanted.—*Extra* fancy comb honey, about 100 lbs. each in Danz and 4¼x4¼ sections, the latter in two-beeway and four-beeway sections.
The A. I. Root Co., Medina, Ohio.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
Hildreth & Segelken,
265-267 Greenwich St., New York.

Wanted—Beeswax. We are paying 29c cash or 31 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York City, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
The A. I. Root Company, Medina, O.

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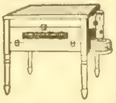
Very little lamp gas in an incubator egg chamber often kills every germ. No gas can possibly creep into the



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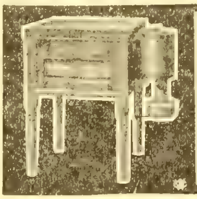
because it's heated by our rustless, heavy copper, hot water circulator. Don't waste money and lose good eggs experimenting with poor incubators. Send for free catalogue, C 10 and learn why the Sure Hatch hatches *sure*. **Sure Hatch Incubator Co., Clay Center, Neb. and Indianapolis, Ind.**



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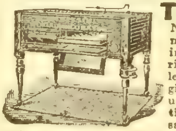

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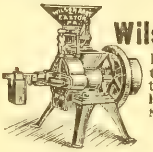
Name of the best Incubator and Brooder made. It's not a chance. They're right in principle, work right. Require least attention and give best results under all conditions. All users say it. Eastern orders promptly filled from Buffalo house. Incubator Catalog free, with Poultry Catalog 10 cts.
Des Moines Incubator Co.
Dept. 503, Des Moines, Ia.

Succeed with a Successful

Make Your Own Fertilizer
at Small Cost with
Wilson's Phosphate Mills



From 1 to 40 H. P. Also **Bone Cutters**, hand and power, for the poultrymen; **Farm Feed Mills, Graham Flour Hand Mills, Grit and Shell Mills.** Send for catalogue.
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Beautifully illustrated, 50c yr., shows readers how to succeed with Poultry.
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Better Material and
better construction make a longer-lasting fence.
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in one-gallon cans, $1 20 per gallon; 10 gallons @ $1.10.
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Corns Cured for 10 Cents, or money refunded.
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is a new and valuable book, of interest to every farmer and horse-owner, just issued by the author, Mr. H. C. Phelps, President of the Ohio Carriage Manufacturing Co., of Cincinnati, Ohio.

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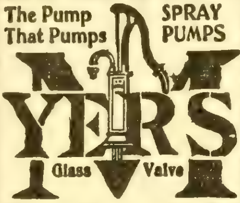

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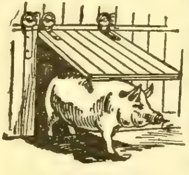

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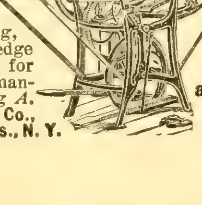

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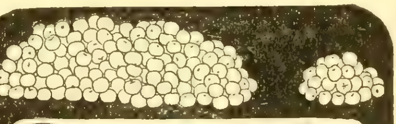

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ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO.
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Vol. XXXII. MAY 1, 1904. No. 9

Stray Straws

By Dr. C. C. Miller.

Honey vinegar, according to an analysis reported in *Le Progres Apicole*, contained 19 per cent more acetic acid than vinegar from apple cider, and only 42 per cent as much alcohol.

The British B. K. Ass'n has a scheme of insurance whereby a member by paying one penny per colony can be secured to the extent of $150 against damage done by his bees to third parties.

The *Centralverein fuer Maehren* complains that, out of the 11,000 bee-keepers of that region, only 2000 belong to the association. I doubt if two-elevenths of the bee-keepers in this country belong to the National.

Frame-tongs of different patterns have been in use in Germany for years, but never seem to have been popular in this country. But they are not needed for top-opening hives as they are for the side-opening hives used in Germany.

I think we may as well dismiss the uncomfortable fear that *Bacillus alvei* is identical with *Bacillus mesentericus*. Not a single bacteriologist, to my knowledge, has come to the support of Dr. Lambotte, and several have disputed his affirmation.

You anti-saloon fellows in Ohio must be nearly bareheaded nowadays — hats all worn out with tossing in the air. [Our hats are on good and tight. We are not saying much, but are doing a good deal of thinking. See Homes in this issue.—Ed.]

Prevention of swarms — Pincot's plan in *Apiculteur:* At the beginning of harvest, reduce each colony to four frames of brood, taking away the ripest brood. He says that, with this treatment, his bees do not swarm. I'm afraid it wouldn't work in all localities.

"A childish notion" is what Reidenbach calls the idea that formic acid is put into honey by the stings of the bees. In a brochure he says the acid is being continuously developed in brood-combs, exhaling as vapor from the empty cells vacated by the emerging young bees.

Nearly takes one's breath away to find in a *German* bee-journal a protest against tobacco earnest enough to satisfy the heart of A. I. Root. The editor of *Imkerschule* says: "Tobacco-smoke injures bee-keeper and bees." Another man says: "Tobacco is poison, and neither does it belong in the mouth of the bee-keeper nor should its smoke be blown on the bees."

"Can a locality be overstocked with bees?" The answer in *Leipz. Bztg.* is that, in most localities, an unlimited number would prosper. I don't know how it is with bees brought up in the German language; but a few thousand colonies of our bees would clean up all the nectar in the richest locality, and not have enough for their own use. [The language of our German cotemporary is pretty strong.—Ed.]

Ruberoid is a new material for hive covers, now talked about in the German bee-journals. It is claimed to be inodorous, permanently elastic, not affected by heat or cold, a great non-conductor, and indestructible. Costs 20 cts. a square yard. [I have heard of this material before. If there is actual rubber in it, there will be a deterioration in time. It is sold in this country, but at what price I do not know. Methinks it is a Yankee invention.—Ed.]

W. O. Victor, page 388, gives 8200 young bees emerging in about two days. That makes about 4000 eggs laid in a day. A certain editor once tried to make me believe that I couldn't argue the size of a colony from the amount of eggs laid, because a good part of the eggs didn't hatch. I'd like to sit down by that same editor and read about Victor's 4000 eggs a day, and then ask him, "Do you think all those 4000 eggs hatched?" [Look here, doctor. You have backed me into a hole before, and I acknowledged myself cornered. Why do you now add insult to injury by firing more questions at me on this subject? No; I'll be like the woman who was "of the same opinion still."—ED.]

G. J. YODER makes a profitable business "in cutting 45 2-lb. blocks and 18 ½-lb. out of a 60 pound can, leaving 4 pounds of odds and ends, p. 394. That makes 103 pounds from the 60-pound can. Didn't those wicked types make it 45 2-lb. where it should have been 45 1-lb? [You are right, doctor. The copy at first read "forty five lb. blocks." As that amount was either 45 or 200 as the reader might make it, it was changed to "45 1-lb. blocks." The compositor took the 1 for a 2, and on reading the copy to the proof reader the mistake was possibly repeated by the same person.—ED.]

A STRAW, page 375, tells of removed bees staying where put after special treatment and a captivity of two hours, and you say, Mr. Editor, that bees will not stay put unless confined at least three days But you ignore the *treatment* he gave them. Are you sure bees so treated need three days confinement? Others report that pounding on the hives and frightening the bees with smoke while imprisoned will make them stay after a few hours of confinement. Are you sure your bees so treated would need 3 days? [No, I am not quite sure; but I think many of them would go back if released in less than three days, even if they had been bumped and pounded as prescribed in the treatment above referred to. But we will test that matter (or I hope to) a little more carefully this summer.—ED.]

"How Americans rear artificial queens" is the heading of an item in *Deutsche Imker*. "Americans frequently use wooden queen-cells (!)," and then is told how R. Rowsome had queens artificially fertilized in a carboy. "Jung-Klaus" dismisses the affair then as a foolish joke. The Germans are inclined to consider any thing done in America as not to be taken seriously, and the Americans return the compliment by complacently concluding they have nothing to learn from Germany. All of which is the foolishness of ignorance on both sides. [Americans have never accepted the theory that queens could be fertilized in a carboy; indeed, they are just as skeptical on that point as the Germans; but in the matter of wooden queen-cells, our friends of Teutonic extraction may have much to learn yet. They should not forget how they have clung to the old Dzierzon hive, and how gradually, now, some of the most progressive of them are working over to the Langstroth-Dadant principle.—ED.]

THE ADVICE to begin with bees on a small scale, increasing numbers with experience, is excellent, but isn't it carrying it a little too far to say broadly that we must go no faster than the bees will pay the way? We don't always do that with other things; why with bees? I know it would have been bad for me if I had followed that rule. [Very likely; but when one is giving advice sometimes he is obliged to overdo it, in order that his pupils may not commit the folly of going too far. It is human nature, when one is all fired up with enthusiasm, such as one gets with an ordinary case of bee-fever, to plunge in debt too deeply. But say, doctor, I was expecting you to assail my article on this general subject of "keeping more bees" in several places. Anticipating that you or somebody else would, I prepared it with unusual care. Now, honor bright, doctor, it is highly important to know, in the case of the extracted-honey bee-keeper of fair executive ability, whether he could realize in a series of years the averages that I have mentioned if he attempted to run a thousand colonies. And while you are about it will you solve another little riddle? If such possibilities can be reached, how are you and I to know whether *we* are the chaps who are capable of running a thousand colonies?—ED.]

A GERMAN bee-journal, advising against too small entrances in winter, gives 1 centimeter high and 8 wide (scant ½ inch high and 3¼ wide) as the right thing. How would that do in Medina? [I am inclined to think this is about right. For the last four or five years we have been testing entrances of various sizes—some ⅞ deep by the width of the hive; some ⅞ deep by 8 inches; some ⅜ by 8; and still others ⅜ by 6. Experience has shown—and that experience is confirmed by reports that have come in—that the two first mentioned sizes were altogether too much of a good thing. The colonies either died outright, or were so weak as to be practically good for nothing for the whole season. The colonies with entrance ⅜ by 8 generally wintered well, while those with a little smaller entrance seemed to have a little bit the advantage. The smaller the entrance up to a certain point during very cold weather, the better for the outdoor bees, providing, however, the passageway is kept entirely free from dead bees. We occasionally get reports of how bees have wintered in a box hive with the bottom left open; but these are the exceptions that prove the rule. I am firmly convinced, from all reports and our own experience, that a very limited entrance, kept open by one or two cleanings during midwinter, is better than a wide one; but when it comes to indoor wintering, of course the larger the entrance the better. Some of our indoor colonies at one of the outyards had the usual narrow entrance. The dead bees were not cleaned out — result, all the bees in the hive dead and moldy.—ED.]

BEES BY THE POUND fell out of fashion in this country some years ago. Not so everywhere. In a single number of *Leipziger Bztg*. I counted 26 ad's of bees for sale by the pound. [Selling bees by the pound would be perfectly feasible in a country like Germany; but in a country like ours, 14 times as large as the German Empire, it is not feasible. We tried it once and had to give it up, because of the great distances of travel. Bees in the form of nuclei can be sent almost anywhere in the United States with very little if any loss. If the combs are not loaded down with honey (and it has been our rule to select them just heavy enough with stores to carry them through, and no more) the express on the bees and the brood both (equivalent to a pound of bees), will not be much in excess. Our nuclei shipping boxes are made of $\frac{3}{16}$ basswood, and are covered, top and bottom, with a very tough wire cloth, so that the weight is reduced to the lowest possible point. Then there is another thing. Taking a pound of bees out of a colony in the spring, and leaving its brood unprotected, takes the very life out of it; but if we take half a pound of bees out and a nice frame of brood, the bees that remain will easily take care of the brood that is left. The customer gets the equivalent of a pound of bees, and the shipper has a colony laying in much better shape. If we were to go back to the pound business, we certainly would have to charge more money. In our experience a large percentage of the pound packages had to be replaced by another shipment while the bees in the nucleus form would go through in good order, as a rule. —ED.]

Pickings from Our Neighbors' Fields By "Stenog."

"You temperance folks want all the earth,"
Says little Tommy Toper;
"Not so," says Jim, his uncle trim,
"We simply want it sober."

* * *

C. K. Carter says in *Review:* "Take an old horse-blanket that has been used, and filled with sweat and odor, and put it on the hive, and the bees will not be so likely to sting a horse as they were before they had become acquainted with the odor."

* * *

Mr. Danzenbaker is here just now, and he says he objects to having his hive spoken of as the "Danz hive," as if that were his name. He wants the name in full, or a period of abbreviation after it. Still more opposed is he to such a word as "Danzy" in place of his real name. His point of order is well taken.

* * *

Red raspberries, so writes A. W. Smith, of Parkville, N. Y., in *Review*, furnish a honey as light-colored as that from white clover, and he is surprised that Mr. Hutchinson should say it is not quite so white. Mr. E. A. Morgan, of Colbourn, Wis., also writes that the wild red raspberry blossoms in profusion for two months, frost or no frost. If killed once, twice, or thrice, it will bud and blossom again. But whether the honey is dark or light in color, its flavor is equal to that of any other, and, to my taste, superior.

* * *

A prominent feature of the *American Bee-keeper* for a long time have been the articles of Deacon Hardscrabble. Although Uncle John frequently dipped his pen in sulphuric acid, and more frequently fired his gun toward those who might be considered his friends than toward his enemies, he scored a good many fine points. He has gone the way of all the earth, dying Jan. 27. A good photo of him appears in said journal for April.

* * *

In the *Review* for April is an article by that fine writer and skillful bee-keeper M. A. Gill, of Longmont, Col., on how he made 400 shook swarms. Here is a paragraph worth pasting, etc.:

> Isn't it behind the spirit of the age for a full-grown man to stand around all day practicing the old mythical methods, and "wondering if the bees will swarm"? Why not open the hives and *see* if they *are* going to? why not swarm them? and if not, then go somewhere and hunt a job more pleasant and profitable. For my part, I like "intense" bee-keeping. This season it was necessary for us (my wife, one man, and myself) to go through two apiaries each day.

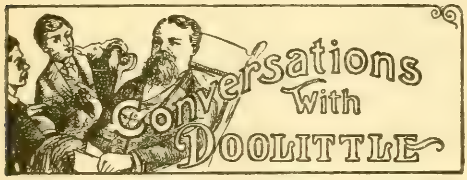
Again:

> If I should use a little, hot, half-story hive to confine a large colony in for three or four days, until the bees are ready for a super, as friend Morrison advises, I should expect absconding. If I should fill a hive up with dummies (all except four or five frames), *a la* Doolittle), I should expect absconding. But if we shake all the flying bees into a full-sized eight-frame hive, with one or perhaps two frames of unsealed larvæ and eggs, remove the super from the old hive, the super being filled with bees well at work on bait sections and full sheets of foundation, on to the new swarm, which is set upon the old stand, and given a well ventilated cover, the bees drenched with new honey, that will fly out in the shaking process, *why* should they abscond? And, furthermore, how could they, unless the queen should go on foot, as she is clipped?

In the same issue Mr. James A. Green gives us an article which I wonder has not been printed before. Much has been said about the advantages of producing either comb or extracted honey exclusively; but Mr. Green here shows good reasons for producing both conjointly. Mr. Green was formerly of Illinois; but, like Mr. Gill, he is trying his luck in Colorado.

* * *

The present may be called the "era of good feeling" among bee-journals. I find no personal differences being adjusted in them, and nothing in particular being debated. The right thing for the right place is now there, and bee culture may be considered as being conducted in a way from which there will be no radical departure for many years if ever. If any problem confronts bee-keepers it is the one that confronts all honest men—adulteration. I have just read a bitter complaint against it in a Swiss bee-journal. The writer says physicians are annoyed by it, not knowing what their patients get when a prescription is filled. One orders honey, for instance, for a sick man. The nurse goes to the grocery and gets what she supposes to be pure honey, but "it consists of a mixture of cane sugar syrup and Chili honey, rendered agreeable to the nose by means of a lot of aromatic substances. These worthless and adulterated goods, not safe for the stomach of even a well man, are dangerous to the sick, and so adulteration finds a new victim. What avails medical skill with the best means at command when it has no guarantee that drugs and liquors are not adulterated? Even the infant in its cradle, as soon as it is weaned, is threatened with adulteration" However it may be with drugs, there certainly is no trouble in getting pure honey in this country. It is probable, however, that most groceries furnish a ready means for adulterators to unload their goods on the public.



HOW TO GET WORKER COMB BUILT.

"Are you very busy this afternoon, Mr. Doolittle?"

"Not extremely so, Mr. Baker. What can I do for you?"

"I wish to have my bees build their own combs this summer; and whenever I try to have them do this, they seem bent on building drone comb. How can I prevent this?"

"When any colony is so weak that it has no desire to swarm, during or preceding the swarming or honey-flow, such a colony will invariably build worker comb, so that worker brood may be reared till the colony comes into a prosperous condition, providing they do not have sufficient comb already built."

"Why can I not use some of the weak colonies I often have in the spring in that way?"

"You can. Taking advantage of this fact I use all colonies which are too weak to store honey to advantage, at the beginning of the honey-flow, or as many as I wish to use for this purpose, treating them thus: Their combs are generally all taken from them excepting two, one having a little brood and considerable honey in it, and the other one being as nearly full of honey as possible, giving all the other combs having brood in them to other colonies so that they will be still stronger for the honey harvest."

"Don't you leave any of the combs which they may have, having neither honey nor brood in them for their use?"

"No. If I did it would defeat my object, for the bees would clean up such combs, and the queen lay in them, instead of the bees building any comb at all."

"I see. But excuse my interrupting. Go on with what you do with the colony after you have taken all away but the two combs."

"I now put in one, two, and sometimes three frames having starters in them or frames which are partly filled with comb, just according to the size of the little colony after having taken their combs away."

"Excuse my breaking in again; but what do you mean by starters?"

"Take a strip of comb foundation one-half inch wide and as long as your frame is wide between the end-bars, and with melted wax stick this along the center of the under side of the top-bar of your frame, and you have a starter that will beat any other which I know of."

"And what did you mean by frames partly filled with comb? Where do you get these?"

"These are any combs which any colony of bees may have started at any time and not completely filled the frames with the same. Or they may be frames once filled with comb, a part of which may be drone comb, which I have cut out, or holes, which have come about by some accident to the combs, such as mice gnawing them, or the bees tearing them down to get out moldy pollen or something of that sort; or I may have allowed the bees to build comb when they were not in the condition to build worker comb exclusively."

"And will the bees patch up such combs as these, filling out with worker comb?"

"Most assuredly they will if the colony is in the right condition."

"Well, that will be lots of help to me, for I have many combs partly drone and partly worker that I did not know what to do with, and now I will make the bees patch them. But go on or I may not know how after all."

"In all this work I always see that each little colony has a frame well filled with honey; for, should storms or cloudy windy weather come on at this time, they would build no comb of any amount, and might starve; while with the frame of honey they will go right on converting that honey into comb, storm or no storm. If the right number of frames is given to suit the size of the little colony they will fill them quickly, especially when honey is coming in from the fields; and each comb will be filled with worker brood as fast as built."

"How long will they build worker comb?"

"If not too strong they will generally build comb of the worker size of cells till the brood begins to emerge from the eggs first laid in the newly built combs by the queen; but as soon as many bees emerge they are liable to change to the drone size of cells; or if the little colony is quite strong in bees they may change the size of cells sooner than this if honey is coming in very rapidly."

"What is to be done then?"

"As soon as the first frames I gave them are filled with comb I look to see about how many bees they have; and if they are still well stocked with bees, or are in a shape where I may expect that they will change the size of cells before they reach the bottom of any frames they may have started with worker comb, I take out any full frames they may have already built, and thus put them in the same condition they were in when I started with that colony."

"Will they do as well in this way as they did at first?"

"They will not build combs quite as freely now as they did before, unless there can be some young bees emerging; so if I can, conveniently, I give them a comb containmostly honey with some emerging brood (if they have such a comb it is left with them, which is more often the case than otherwise) from some other colony, when they are ready to work the same as before. If just the right amount of brood is left, or given them, so that they stay in about the same condition, they will build worker comb all summer by the apiarist supplying them with honey or feed when none is coming in from the fields. If not so strong but that I think they will build worker comb still longer, instead of taking the brood away, I spread apart the combs now built, and insert one or more frames with starters between, when these will generally be filled with worker comb before enough young bees emerge for them to change the size of cell."

"Suppose they do change the size of cell, what then?"

"One thing is always to be kept in mind whenever you find them building drone comb. The combs they then have, all except the one mostly filled with honey, are to be taken away so that they may feel their need of worker brood again, when they will build cells of the worker size once more."

"Have you used this plan much?"

"To the extent that I have had hundreds of frames built full of worker comb in this way, hundreds completed that the bees had built partly full the season previous, and hundreds if not thousands patched where I had cut out patches of drone comb which had gotten in in one way or another; or where I had cut out pieces of comb having little larvæ in that were to be used in queen-rearing. In this way the bees fix these holes in any comb in a very perfect manner; in fact, very much better than any man can do it by fitting in patches of worker comb as was the manner of fixing up combs having a little drone comb in them, during the past. Therefore I do not fear mutilated combs nearly as much as I formerly did."

"This has been an interesting and profitable talk with me, and I feel very grateful to you for telling me so freely. I will be going now. Good day."

"Good afternoon. If you see any one of your bee-keeping friends who wishes a mutilated comb fixed so it will be a surprise to him, tell him to give it to a little colony fixed the way I have described to you, and let him see what nice work they can do at patching with all-worker comb."

Editorial
By E. R. ROOT.

THE bee-keepers of Pennsylvania effected a permanent organization at Williamsport, Pa., April 12. The following were chosen as officers: President, H. A. Surface, of Harrisburg; Vice-president, E. E. Pressler, of Williamsport; Secretary, Rev. L. D. Woods, of Muncy; Treasurer, E. L. Pratt, of Swarthmore; Executive Committee, R. D. Barclay, of State College; C. N. Green, of Troy; E. F. Phillips, Philadelphia; E. A. Dempwolf, of York; J. D. Costello, of Harrison Valley. Two additional vice-presidents were chosen — John Prothero, of DuBois, and Wm. A. Selser, of Philadelphia. Prof. Frank Benton, of Washington, delivered an address on bees, at the evening session. The next session will be in Harrisburg next December, of which due notice will be given.

SUCCESSFUL WINTERING OUTDOORS IN SINGLE-WALLED HIVES.

A SHORT time ago one of our friends and patrons, S. F. Miller, North Manchester, Ind., said he sent us an article that I ignored, something over a year before, that he said he considered to be one of the best on the subject of outdoor wintering that we had ever received; that he had aimed to give, briefly, to the bee-keeping public what had cost him something like $600 in loss of bees. I immediately had a search made, and found that such article had been sent, but it came in June, when it was entirely out of season, and when, as a rule, communications on wintering are shoved aside, and the general subject of honey-production and summer work in general are of more vital interest. As our friend was an extensive bee-keeper it seemed proper to go over the article very carefully, and discover what it was that he considered of such vital interest to the bee-keepers at large. Well, here it is: It is wintering in single-walled hives having a Hill device put on top of the frame. A piece of old carpet is spread over the hive, large enough to hang down over the sides a half or two-thirds of the way all around. Another one is spread on in the same way. Over this is then set an empty super, squarely over the top. This is filled full of rags packed all round the edges. The oilcloth that covers the frames is then put over the whole, and, last of all, the regular hive cover. This, in the opinion of our correspondent, beats all cellar wintering he ever saw or heard tell of, better than a double-walled hive, and warmer. Chaff, he says, is too light.

During the past severe winter he transferred 380 colonies on empty frames in 27 different localities from 5 to 22 miles apart, and they all wintered well, notwithstanding that half the bees about him were dead from winter losses.

Perhaps the matter is a little out of season; but I am willing to place it before our readers; but I would suggest that they first test it in their own locality in a limited way. A plan or method that will answer for one bee-keeper or for one part of a State will often prove to be a failure in another.

WINTER AND SPRING LOSSES HEAVIEST FOR 20 YEARS.

THE reports are still coming in, and the situation is, if any thing, more serious than last reported. The losses are confined to localities around the lakes, mainly. As before, Michigan, New York, and Pennsylvania seem to be the chief sufferers. The backward spring has been a fearful setback to the bees. In York State the losses are so severe that not only the beginners but even the veterans, according to inspector Stewart, in many cases, have suffered heavily. Taking it all in all, I am rather of the opinion that the aggregate mortality for the lake regions will be the heaviest known for a period of over twenty years.

ANOTHER TALL SECTION USING SHIPPING CASES AND SUPERS.

ONE of our neighbors, Mr. J. B. Hains, of Bedford, O., well known to our older subscribers—in fact, he was the inventor of the Hains feeder—uses a section 5⅔ in. high by 4¼ wide and 1¼ thick — that is, he divides up the length of a super, designed to hold 4¼ sections, into three equal spaces instead of four. For example, the section-holder is just 17 inches wide in the clear. If we divide up this 17 inches we get three spaces 5⅔ inches each — instead of four. This makes it possible to use the section in an ordinary super, laying it on the side, of the dimensions above given. It also makes it possible to use the regular shipping-cases for 4¼ sections. Mr. Hains' argument in favor of this size is that it makes a thin comb of large surface, and it holds approximately a pound; that the bees will fill these thin combs quicker, and finish better, than they will thicker ones, and that such sections fit his regular supers and shipping-cases without any change whatever. The boxes certainly present a very pretty appearance when filled with honey. Of course, a section taller than broad, laid on its side, or, more correctly speaking, a good deal broader than tall, will have one long side not so well filled out as the other long side, while a tall section that stands up in the super will have one short side imperfectly filled out instead of the long one. Mr. Hains says these sections laid on their side are nicely built out by the bees, and that no one but an expert would notice which way they were laid on the hive.

Mr. R. C. Aikin, however, gave the rule that the bees would more readily build a comb downward, making it long, than they will build a shallow comb much wider than deep. I suppose there is something in it. But Mr. Hains prizes very much the feature of being able to use the regular supers and shipping-cases.

SOME LESSONS GLEANED FROM INDOOR WINTERING; A POSSIBLE SOLUTION OF CONFLICTING OPINIONS.

DURING the past winter we have been conducting a series of experiments on the general subject of wintering, particularly respecting the indoor plan. Our readers will remember that I have advocated a large amount of ventilation for repositories, even going so far as to recommend the opening of doors at night, and closing them again in the morning in moderate weather. Experience with our bees under the machine shop has shown most conclusively that far better results have been secured by giving the bees frequent infusions of fresh air than by shutting them up and compelling them to breathe the same air over and over, day after day. But in this there were some prominent and skillful bee-keepers who took issue, and it seemed difficult to harmonize their opinions with the other school to which I belonged who contended for ventilation.

We put 250 colonies last winter into a small compartment under the machine shop, with the rumble and roar of machinery above, with the occasional dropping of heavy castings, and the constant walking to and fro of the employees during working hours. How did they come out? There was a loss of only one colony, and that a nucleus, out of the entire number. There were very few dead bees on the floor, and what there were showed no signs of disease. They were simply superannuated fellows that had served out their usefulness. I called Mr. Vernon Burt and Mr. Francis Danzenbaker into the cellar the day before taking the bees out, and they both pronounced themselves as being highly pleased with the conditions as they found them. Said Mr. Burt, "Why don't you winter *all* your bees here—save your stores, and be prepared for any kind of winter?"

"I would, but I want to experiment for GLEANINGS," I said. "We will continue, however, to put in more and more bees until we finally have them all in."

Half of the 250 colonies were two and three frame nuclei, and they could not possibly have survived outdoors. All of these were in healthy condition; and when we put a part of them outdoors a few days ago there was no spotting of the hives.

But I wish I could show as good results in indoor wintering in the two out-yard cellars, each of which contained from 50 to 60 colonies. The one at the north yard was damp, although it was built on the cistern plan with a large ventilator, as recommended by Mr. T. F. Bingham. From 10 to 15 per cent of the bees are dead, hives badly soiled, and there are many dead bees in the bottom of the cellar. At the south yard the conditions are about the same, but not quite so bad. Why, then, if we can winter so perfectly under the machine-shop, with all the rumble of the machinery, can we not do as well at the two outyard cellars where it is perfectly quiet? The conditions are largely the same, *expect* in the matter of temperature, which went down close to the freezing-point for long periods of time in both the outyard cellars. Right here was the cause of the dysentery and the losses—at least I do not look for it anywhere else. The dampness may have something to do with the matter, but I think not much. If the temperature could have been controlled by means of a stove when it went below 40, we should have seen far better results.

How, then, do I harmonize the opinions of those who differ in the matter of ventilation? Simply this: A cellar that has a large ventilator is liable to have the temperature go considerably below 40; and it is better to have little or no ventilation than to have such a drop in the mercury; but far better still is it to have plenty of ventilation and a uniform temperature. Mr. Doolittle, in his sidehill cellar, can control, if I am correct, the temperature providing he does not have open-air ventilators by which the cold from the outside, or the warmth either, can be conveyed into the repository. In our machine-shop cellar we control the temperature within a range of 10 degrees, and at the same time give the bees fresh air—large quantities of it—whenever it warms up outside sufficiently to raise the temperature inside. When I took Mr. Danzenbaker and Mr. Burt into the cellar the mercury showed 60 degrees — rather higher than usual; and they both will testify that the bees were very quiet, and the atmosphere clean and sweet. There were but few dead bees on the cellar bottom, and the conditions were almost perfect.

Perhaps this discussion is a little out of season; but when we have just come out of our cellar wintering we can best compare notes, and be prepared to act accordingly for the next season. The result of our observations thus far shows that, for successful indoor wintering, a *uniform* temperature centering around 45° F. is the first and most essential requisite; second, fresh air whenever the temperature goes above 55; third, dryness; fourth, good food. Now, then, I am prepared to indorse what Doolittle says, up to a certain extent. If a bee-cellar is in an outyard where artificial heat can not be supplied when the temperature goes low, there should be little or no ventilation; but when the temperature can be controlled — and here is where I disagree with my friend, whose opinions I always value much—then give plenty of fresh air.

I should like to have the whole bee-keeping fraternity see the splendid results of ventilation, and control of temperature in our machine-shop cellar; and perhaps another winter I will arrange for a delegation of bee-keepers to come and see for themselves the "proof of the pudding."

Our shop cellar, with conditions as they are, is a great boon to us, because in the queen-rearing business we have a large number of nuclei, and I think we can winter these about as well as we can winter strong colonies; and, what is of vastly more importance, we save anywhere from 5 to 10 lbs. per colony in the smaller consumption of stores. But this is not all. The light eaters will be more vigorous, and in better shape the coming spring. Show me a man who is a heavy eater and I will show you one with a red nose, and who probably will not live out his allotted days. He will complain of feeling old, sick, "grippy," and drowsy after meals. If the bees have to eat heavily to keep up animal heat they are drawing on their vitality, and will in consequence overcharge their intestines, resulting in dysentery.

How about our outdoor bees? Our loss was about ten per cent. When they went into winter quarters they were all strong and in prime condition. The survivors are now little better than three-frame nuclei. But the outdoor bees fared about as well as those indoors where the temperature went down too low.

DEATH OF GEN. D. L. ADAIR.

THE following has just come to hand on a postal card:

> General D L. Adair, Mexican-war veteran, and inventor of the Adair hive, expired suddenly at his residence near Hawesville, Hancock Co., Ky., yesterday morning from heart failure. He was above 80 years old. J. C. LEWIS.
>
> Adair, Kentucky, April 20.

I shall have to explain to our younger readers that General Adair was at one time, some thirty years ago or more, one of the brightest and most valued writers for the *American Bee Journal*. It was he who gave us the Adair frame; and Adair and Gallup together gave us what was called the "Long-idea hive." If I am correct, it was Mr. Adair himself who first suggested that, instead of making the hive two or three stories high, we simply lengthen it out like a watering-trough, adding surplus combs to the back end opposite the entrance as fast as they were needed, according to the growth of the colony and the amount of honey coming in. Just now I recall only one apiary that is managed in this way. Our friend O. O. Poppleton, of Stuart, Fla., still uses this arrangement very successfully. He claims he gets just as much or more honey, and he also obviates the necessity of lifting off an upper story, which his strength will not permit him to do. General Adair was a vigorous writer, and I believe he was a successful bee-keeper. About the time GLEANINGS started (1873) he somehow or other dropped out of sight—probably becoming engaged in other business; and I have several times thought it rather unfortunate that he should have so suddenly ceased writing for any of the bee-periodicals.

It would seem from the above notice that, even though General Adair did die of heart failure, he lived to a good old age. During the time he was actively engaged in apiculture, and writing for the journals, he did much to stir up an interest in apiculture, and to turn deep thinkers and experimenters into channels that might not otherwise have been explored. It was his (or his ancestors') name, if I am not mistaken, that gave the town of Adair, where the above postal card was written, its name.

About the time GLEANINGS was started, I had a chromo made of a hexagonal apiary, each hive being shaded by a grapevine. At that time I planned a standard extractor, a standard hive, and a standard frame. My standard frame at that date was the Adair, 11¼×13⅝; and the standard hive was made long enough to hold 20 frames, one story high, the entrance being at one end. At that time I endeavored to get the bee-keepers of the world united on a standard frame, and suggested the above dimensions. Very soon I found out, however, I had made a mistake. There were not only more frames of the Langstroth dimensions in common use than any other, but the majority of the bee-keepers preferred the Langstroth size to any other; and, if I am not mistaken, the same has held good during all the thirty or more years since then.

Another of the veteran bee-keepers and writers has been called to his long home—another reminder to those of us who are getting well along in years that our stay in this world is coming to a close. Peace to the ashes of Bro. Adair.—A. I. R.

THE GROWING POPULARITY OF THE FENCE SYSTEM.

VERY recently I had occasion to go over some of our back volumes, and also some other periodicals devoted to bee-keeping. Some things interested me, especially in the light of the present. When I first introduced* the fence and plain-separator system I was enthusiastic in its praise. But very soon there began to be doubting Thomases. The new thing was declared to be a doubtful innovation, a silly fad, notwithstanding it had up to that time been used by various persons for eight or ten years with a good deal of success. It is somewhat interesting *now* to read over the prophecies of failure that were made *then*. It was declared that the plain sections would not crate, and that the whole system was a fraud on the public. The condemnation that was heaped on it reached the point of personal abuse. Now what are the results? In spite of this opposition it has steadily worked itself into favor among bee-keepers, until the fences are now made in one factory alone at the rate of half a million a year—enough to super two million plain sections at a time. Honey in plain sections has come to be very common on the market; and the idea that it won't crate is exploded long ago.

There is no feeling of pride on my part because that system as a whole has been vindicated away beyond my expectations, nor, on the other hand, any feeling of resentment. When a new thing is introduced, especially if it has any merit, there is always bound to be, if the past is any criterion, more or less opposition, even from good men. This is but natural, for it is a fact that many things are foisted on the public before they have been carefully tried. Very often the public and not the manufacturer is the sufferer.

The following is a sample of the letters that now come in. Contrast this with the utterances of a few years ago.

NO BRACE-COMBS WITH FENCE SEPARATORS.

Mr. Dibbern says he has had trouble with brace-combs where fence separators are used. I use the ten-frame Langstroth hive and Danzenbaker super, and have had no trouble with brace-combs. I have used solid board separators, but I have had more trouble with brace-combs than with the plain tall section and fence separators; in fact, I do not remember having brace-combs attached to slat separators.

Almost all of my comb honey this year was in tall plain sections, and you would think that it had been made by machinery. I sent some to a retired comb-honey producer, and he pronounced it the finest comb honey he had ever seen.

I use full sheets of foundation in sections, and would not think of using starters, as I get, I think, a fourth more honey or more by using full sheets.

I consider the fence separators and tall plain sections the greatest boon to comb-honey producers ever introduced. WALTER M. PARRISA.

Lawrence, Kan.

MICHIGAN'S LAST PINES; THEIR AWFUL SLAUGHTER; IS THERE A SUBSTITUTE FOR WHITE PINE FOR HIVES?

THERE is something grand and majestic in the half tone of those pines shown elsewhere, and at the same time something awful and melancholy too—grand and majestic because of their stately dignity and the utter stillness that breathes through their very atmosphere; awful and melancholy because of the ax and the forest-fires of man.

When I last went through Michigan, spinning by vast areas of devastated country blackened by fires showing only here and there black shafts of the once noble pine in all its primeval glory, there was a feeling of sadness that came over me. The land was unproductive for agricultural purposes, and, contrary to what we might naturally suppose, instead of new pines springing up to replace those cut away, worthless scraggly scrub oaks dotted the ground here and there, with here and there a hovel where dwelt some man and his family too poor to move to better soil. When I made the inquiry whether the pine could not be made to grow on land where they once grew, I received doubtful responses. Pines, it was said, would not spring up spontaneously like other forest-trees; and even if they did, the hunters with their campfires would soon make short work of them. Have there been no attempts made on the part of the State to reseed or replant

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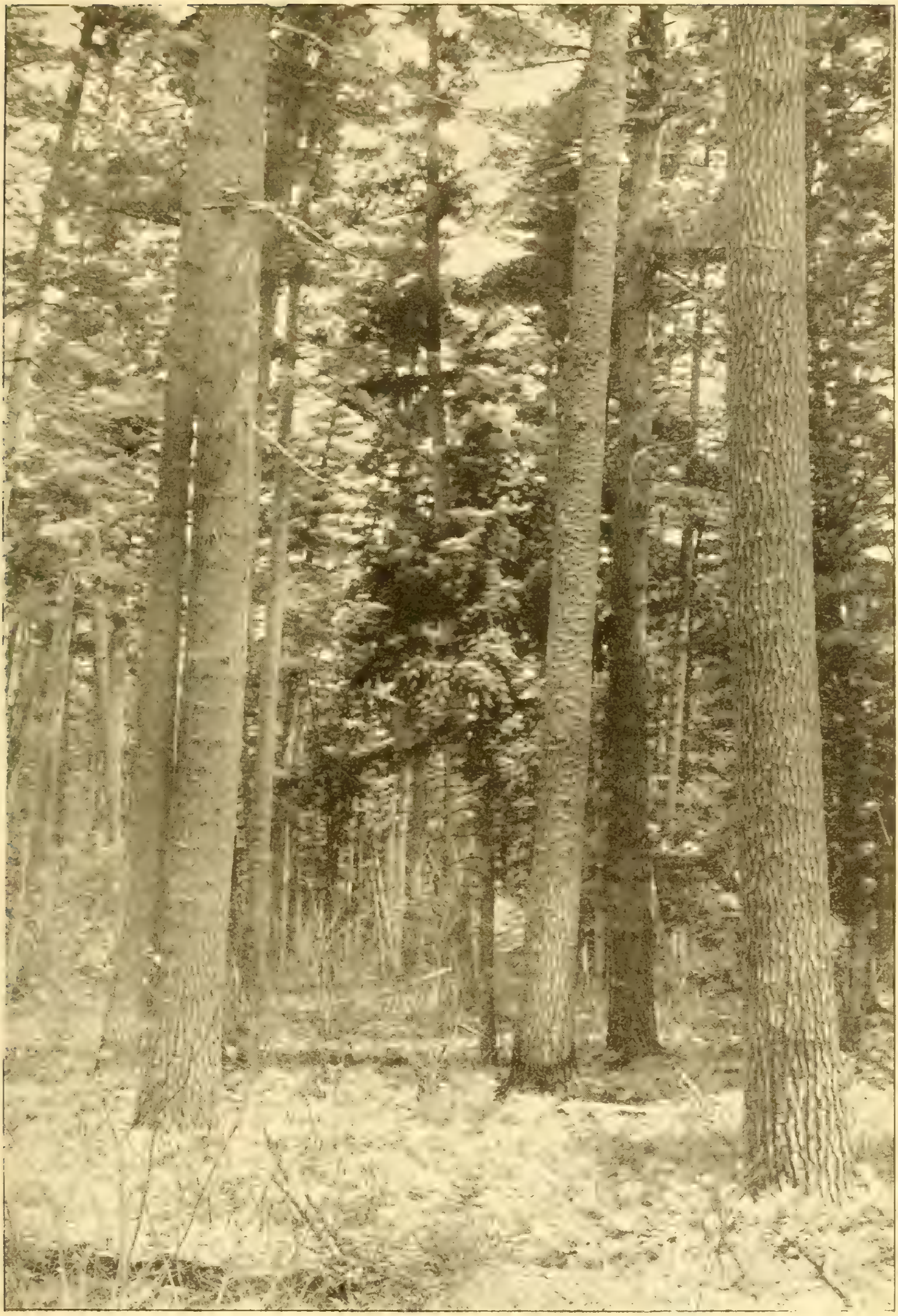
* By this I do not mean "invent" or "originate," for I did neither. I simply brought before the public an old thing which I thought had great merit.



MICHIGAN'S LAST PINES.—PHOTOGRAPHED BY W. Z. HUTCHINSON

This shows the virgin forest white-pine trees of which hives are made—the only really good timber in the world for the purpose. The section shows a part of a small tract of white pines in Otsego Co., Mich.—the last tract of its kind in the State, and one of the last in the whole country. This particular lot is now being rapidly cut out with a mammoth sawmill equipment at the enormous (shall I say awful?) rate of 200,000 feet every 24 hours, the year round. At this rate these grand old monarchs that, in days gone by, have made Michigan great, will soon be gone, never to be replaced. See opposite page.

with new pines? Yes, but they were abortive, and the experiment was a failure. Thousands and thousands of acres of land that once sold at big prices, because of these very pines now all gone, are begging an owner who will even pay taxes on them. The land is just as good as it ever was for growing pines; but the conditions brought about by civilization have made the starting of new trees impossible. Laws have been passed, restricting hunters; but the Indian, who is amenable to no law, will build his fire when and where he pleases.

I had supposed that all the Michigan white pine had been cut out of the State; but it seems my brother-editor, Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, has found one small tract—not so very very small, either, in a way, but small in comparison with what these tracts once were before so-called civilization had pushed itself among them. From a photographic point of view the original of this picture is a work of art.* The illumination, the high lights and shadows, the penetration, definition, and atmosphere, are all ideal. W. Z. H. has a true sense of the poetic and artistic; and when he walked some five miles over the ties, carrying a big camera (for the lumber company would not let him ride on a log-train without a permit), and when he bunked with the lumber men in camp, and partook of their rations, and when he spent hours and hours of time hunting for the right spot, and waiting for the light to get just right, he showed the instincts of a true amateur—a type of a limited class of artists who are more expert than the average professional.

I have tried my hand at taking pictures; but I always feel like taking off my hat to my brother editor, who excels me every time; and I do not feel so very bad about it either; for there are very few amateurs in the country who can equal him, and fewer still who can surpass him.

But let us go back to the subject of our picture.

Is there any timber in all the world that meets all the conditions required in a hive so well as white pine? The echoing responses from thousands of bee-keepers answer back, "No, no."

There are other timbers that will stand the weather, but they are so tough as to be hard to work. There are other timbers that are workable, but they will not endure the sun and the rain. Go over this world where you will, there is no other wood that is so suitable for general purposes as the genuine white pine. There is a so-called white pine in Oregon; but it is tough, brittle, and lacks many of the essential qualities that have made the white pine of Michigan so famous. There is the redwood of California, perhaps the very best substitute for white pine in hives; but it has the disagreeable fashion of shrinking endwise, being brittle, and unsuitable for brood-frames. It stands a dry climate perhaps better than white pine; but in other respects it is not the equal of it. The sugar pine of Central California is another excellent timbe; but it, too, tough and brittle, falls far short of the ideal conditions. The yellow pines of the South (and we may have to use them some day) are too pitchy, and the timber too heavy, to be really suitable. The whitewood of Kentucky does very well, but it will not stand the weather, and has to be constantly covered with paint or it will soon deteriorate. Basswood will not weather either, and, besides, it is becoming nearly as scarce as white pine. The inevitable conclusion is, that the best timber in all the world for hives is becoming scarcer and scarcer; else why should bee-keepers east, west, south, and north pay bigger prices for hives made of it?

The most of our white pine comes from Canada, with the duty added. How long this supply of our northern borders will last is hard to say; but the same machinery that cleaned out our own timber has been imported across the line, over into Oregon, and throughout the South. No effort is being made to replace our valuable timbers; and the coming generation may be compelled to use brick, stone, and iron, and perhaps strawboard and other material made from scrub timbers ground up and worked over into a pulp. The sad thing about it is, one generation does not have very much regard for the generation that is to come. We look out too much for our present needs, without a thought of what posterity will require. If we could grow pine and basswood as we grow hay and straw, enough to take care of a season's supply, then the problem would be simple.

BEES AS A NUISANCE(?).

It would seem almost out of place to discuss this question in a work intended for perusal and study of those who believe, and rightly, too, that bees are not a nuisance; but, as I shall show, there are reasons why we should calmly discuss this question in order that we may avoid trouble that may arise in the future. Certain difficulties have arisen between the keepers of bees and their neighbors. Perhaps the bees, after a long winter confinement, have taken a flight and soiled the washing hung on the line in a neighbor's yard; perhaps some of his children have been stung; perhaps there have been times when he has been annoyed while in the peaceable possession of his own property by bees coming on to his own premises, and smelling around, as they will sometimes do during the canning season when fruit is put up, when the aroma of sugar and of the juicy fruits is flowing out through the doors and windows of the kitchen. Perhaps the offended neighbor keeps chickens, and members of his feathered tribe have trespassed on the grounds of the bee-keeper. The result of all this is that a bad feeling arises. Complaint is made to the village fathers; an ordinance is passed declaring bees within the limits of the co poration to be a nusiance, and requiring the keepers of them to remove them at once or suffer the penalty of fine or imprisonment, or both.

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*I wish our reproduction of it could be as good.

In some instances, live stock has been stung; a cow or a calf or a horse may get near the entrances of the hives, which, we will say, are within a foot of a dividing line between the two adjoining properties. Perhaps the stock is stung nearly to death. Damage is claimed, a lawsuit follows, with the result that a feeling of resentment is stirred up against the bee keeper. But this is not all. Possibly the bee-keeper has an apiary in his front yard, bordering on the general highway. A nucleus may be robbed out, with the result that the bees are on the war-path, and begin to sting passersby. Perhaps a span of horses is attacked; a runaway follows; damages are claimed, and another lawsuit is begun.

In the foregoing I have supposed *possible* instances. It is proper to state that they are only types of what has occurred and may occur again, and it behooves bee-keepers to be careful.

In the case first mentioned (the washing of the aggrieved neighbor soiled by the stains from bees affected with dysentery), it is well for the bee-keeper to send over several nice sections of honey, or offer to pay for the damage done to the washing. Nothing makes a woman madder than to have her nice clean white linen, after she has scrubbed, rinsed, and hung it out to dry, daubed with nasty, ill-smelling brown stains. But if our bee-keeping friend will take pains to offer an apology *before* the woman makes complaint, and show a disposition to make the matter good, trouble may be averted. And right here let me say, if the bees are in the cellar do not set them out on wash-days; or if they are outdoors, and the sun comes out bright, and they begin to fly strongly from the hives, send word to your neighbors and ask them not to put their washing out, if it is wash-day, for a few hours. Send along a few boxes of honey, and keep the folks across the way "sweetened up." Ninety-nine neighbors out of a hundred will put up with a great deal of inconvenience, and say, "Oh! that is all right. It won't take long to rinse out the clothes again."

Take, for example, the more serious cases where horses or cattle have been stung. If you have been foolish enough to place your hives near the highway or your neighbor's line fence where he has loose stock, you may have to pay pretty dearly for it before you get through. The remedy is prevention. Always put the bees in a back yard, and not too close to your neighbor's line fence. Be careful, also, to prevent robbing. See that there are no weak nuclei with entrances too large. As soon as the honey-flow stops, contract the entrances of all the weaker colonies. If extracting is done after the honey-flow, great caution needs to be exercised. The extracting-room should be screened off, and bee-escapes should be provided. Wherever possible, take off all surplus by the use of bee-escapes rather than by shaking.

But we will suppose you *do* get into trouble. What are you going to do about it? We will assume that a city or village ordinance has been passed, and that your bees have been declared a nuisance. Do not move the bees if you have used reasonable precaution, but write at once to the Manager of the National Bee-keepers' Association, whose address will be found in the back part of this book. If you are a member of the Association you will be entitled to protection, and possibly all or a part of the court expenses will be paid by the organization. But the Association does not undertake to defend its members against criminal carelessness of such a kind as I have already described; but when the bee-keeper has exercised every precaution, then it endeavors to protect his rights. This means, then that you should become a member *before* you get into trouble. The annual fee for membership and protection is $1.00.

Well, we will say the attorneys have been retained, and the Association is back of you. Any number of decisions have been handed down to prove that bees are not a nuisance *per se;* that, when they are properly kept, and due precautions are used, they can not be driven out of the corporation There are several precedents from various courts, even from the Supreme Court of Arkansas, to show that bees have a right to be kept within a corporation like any other live stock, so that any ordinance not in conformity with these decisions can be declared unconstitutional. Several ordinances declaring bees to be a nuisance have been repealed —*From new edition of the A B C of Bee Culture, now in press.*

CUTTING CANDIED HONEY WITH A WIRE, OLD

REFERRING to the matter of cutting candied honey with a wire, one of our correspondents, Mr. William Russell, of Minneapolis, Minn., writes us that he has been using it for over ten years, and he supposed it was so old that every one knew about it, and he adds that the use of a taut wire to cut cheese, butter, and other like substances, has been in vogue across the water for thirty years. I have known that such use had been made, but did not know of its employment for cutting candied honey. This scheme of cutting honey has now been before the bee-keeping public for two months, and *only one* correspondent, since then, Mr. Russell, speaks of using it before. It would appear from this that it could not have been in very general use by bee-men or we should have heard from it more promptly.

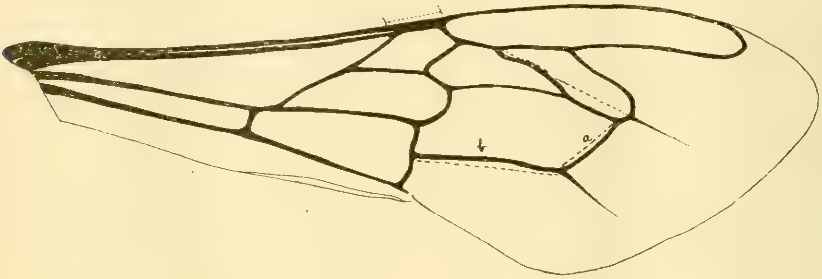
From his ten years' use of the plan perhaps our correspondent can give us some new facts of interest, whether such honey continues to sell, whether it softens in summer, how to cut, etc.

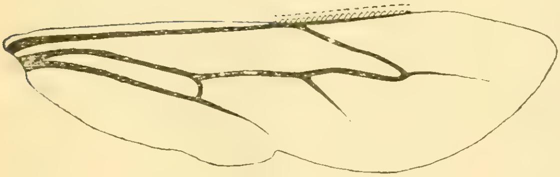
RELATIVE VARIATION OF DRONES AND WORKERS.

The Importance of Large Drones.

BY E. F. PHILLIPS.

It is, no doubt, well known to most of the readers of GLEANINGS that the drones in a hive vary in color more than do the workers from the same queen. Another fact still more easily seen is that there is a great difference is the shape of the body in drones which hatch from worker-cells and those which hatch from the regular drone-cells. From these two facts the inquiry arose as to whether the drones or the workers showed the greater amount of variation in other parts of their bodies; and to test this the writer, together with Dr. D. B. Casteel, of the University of Pennsylvania, made a series of measurements of 500 drones and 500 workers. In this work the wings were chosen, since they were the most satisfactory organs that we could find, as they do not shrink in alcohol.





Before going into details a few words along another line may be allowed. As is well known, the drones come from parthenogenetic eggs, and the workers from fertilized eggs. On general principles it might be supposed that, since the workers have two parents, they would naturally vary all the way between these two parents in their characters, while the drones, with one parent only, would tend to be like that one parent. If we did nothing but sit down and reason the thing out we should come to the conclusion that the workers would vary more than the drones; but while reasoning is all right in its place, it must be preceded by observation, and we shall see in what follows how well our reasoning serves us.

The illustrations which accompany this article show the veins on the wings of the bee. Five measurements were taken for each bee measured, and the points marked in dotted lines show what these measurements were. Besides this, for each wing we divided the length of the vein marked *a* by the length of the vein marked *b*, and got a fraction which represented their relative lengths. After this measurement was all done (and it took considerable time) we arranged our results in the form of tables. Since these tables were made out to prove a point which has no bearing on apiculture I will not give them here; but they will be published elsewhere, since they are, perhaps, of interest from the standpoint of zoology. The facts brought out were that *the drones vary more than the workers*, and that *the variation depends on the cell from which the bee hatches.* For example, a drone from a worker-cell is long and narrow, with long narrow wings, while a drone from a full-sized drone-cell is fat, and has wide strong wings.

Now, the point which interests apiculture most is this: Since the drone's size and power depend on the cell from which it comes, it is of the utmost importance that full sized drone comb be furnished when the drones are to be used for fertilizing queens. If nothing but worker foundation is given to the bees, the drones will be small, and their organs will not get a chance to develop as they should, and their wings are not strong enough to support them when they take the marriage-flight with the queen. Small drones are perfectly capable of fertilizing a queen, as all bee-keepers know; but in the race for the queen it is the largest drone that is successful; and, in case a small drone does catch the queen, he will not be able to give enough spermatic fluid to last her through life, and she will soon dwindle.

There is one fact that some queen-breeders overlook, and it seems very desirable to point it out as plainly as possible. The male has just as much influence on the offspring as has the female, and just as much care should be exercised in the choice of the drones in a yard as is used in choosing the breeding queen. If a man pays $10 for a breeder, and then lets all kinds and sizes of drones fly in his yard, he generally gets what he deserves; and that is, a poor lot of queens. It is the customer who suffers, since a queen may leave the apiary tested, and in capital condition, and the results of incomplete fertilization not show for some time. Of course it may happen that the breeder gets fairly good results; but he must not take any credit to himself for it. All drones from poor queens should be trapped, and all good queens should be provided with drone comb — on drone foundation—to make sure that their drones will be large; and it is just as necessary to do one of these things as the other. The reason that drone foundation is recommended is that the transition cells between drone and worker sizes produce irregular drones, and the use of foundation overcomes this.

If any of the readers of GLEANINGS have any facts which prove or disprove the results of our measurements it would be considered a favor if they would write me a letter stating these facts. Dr. Casteel and myself do not care to ask for theories, since we can make those up to suit ourselves; but any reliable information might be of considerable help, and offer suggestions for more of this work, which will be done in the future by one or both of us. In case any one has any suggestion to offer, the letter may be addressed to Biological Hall, University of Pennsylvania, Philadelphia, and will be appreciated.

Philadelphia, Pa.

PACK MULES FOR CARRYING BEE-SUPPLIES.

Making Use of Them for a Yard up in the Mountains.

BY HENRY E. WOEST.

I have an apiary located eight miles from a wagon-road, with only a pack trail to it. There are now 130 colonies of bees in it. The honey-cans were packed on the donkey and horses. Bee-hives, tank, extractor, etc., were packed on the three animals in the three former years. In the photo the donkey has on 22 five-gallon honey-cans. I have packed lumber from one to twelve feet long on those three animals. A load would be from 60 to 120 feet of lumber, depending on weight. During the year 1903 I packed on those animals 350 empty five-gallon honey-cans, 6 tons extracted honey, and 3500 feet of lumber with which to build a house.

Newhall, Cal , April 12.

A WISCONSIN APIARY THAT PRODUCED 15,000 LBS. OF HONEY LAST SEASON.

A Galvanized Hive-cover.

BY LOUIS C. KOEHLER.

I mail you two photos. One shows a part of our apiary of 252 colonies. From this apiary we received, during the past season, 15,000 lbs. of extracted honey. We do not raise comb honey for sale. The little that we do raise we give away. We have a retail market in the neighboring towns where we dispose of all our honey. Some of our customers consume as much as 150 lbs.

The other photo shows the front room of our extracting-house. This house, which is 16×28 ft., is used only for apparatus belonging to the bee business. The back room is our storage-room for honey, and the upper story is used for storing empty boxes, supers, supplies, etc.

A HORSELESS WAGON FOR CARRYING BEE-SUPPLIES UP INTO THE MOUNTAINS.

You will notice that I use a false or weather cover over the regular cover. At first I used half-inch boards for this cover, mostly basswood; but I found that, in spite of paint, the cover would not last long, and clear lumber became quite an expensive thing, besides the trouble of renewing the cover every few years. Then I tried roofing tin for covers, without any boards on top, but I did not find that very satisfactory. The tin would rust through in a few years, quickest where it was nailed. Besides, the covers were too light to stay on in any wind; they would also bend up so that they became very bad-looking at best. I next tried galvanized iron, but found that it would also rust where a nail was driven, and found the same trouble with the wind.

The cover I use at present, the kind you see on most of the hives in the photos, I find perfectly satisfactory. It consists of a rim and a rounding top covered with galvanized iron crimped over the projecting edges of the top. This does away with the nailing, as the galvanized iron is held on by means of the crimping of the edges. The cover is also heavier, and is more firm. The boards under the galvanized iron may be of any grade, as they are not exposed to the weather. The only thing that I see against the covers is the first expense; but I believe that, in the long run, they are the cheapest.

Tisch Mills, Wis., Jan. 13.

[Your interior view suggests several interrogation-marks. What about that Given foundation-press that shows over to the right of the picture? Is it in service yet? and if so. what about the foundation? Then we notice that one of your extractors is high-geared, and the other low-geared. Why this? Can you not give us a little more light? Your picture suggests that you are a practical bee-keeper.—Ed.]

LABOR-SAVING IN SNOWY WINTERS.

The Experience of a Veteran.

BY T. F. BINGHAM.

The uncertainty of winter, and the fuss of putting bees in a cellar, have left the winter problem a debatable one in the middle and northern portion of the United States. Continuous uniform cold has not, within the past twelve years, pervaded so wide a region as has the winter just past. From Nov. 1 to March 14 not a single day has favored or permitted the flight of bees, even in protected places, in this vicinity;

KOEHLER'S APIARY WITH GALVANIZED COVERS.

and while the extreme cold has not been any greater than usual the warm or mild sunny days have gone far below the average. The warming-up of thin frosty hives, so frequently observed in the journals, has been practically eliminated.

Of course, it is too early to obtain any definite data regarding the outcome. All we can know at present is that it has been a source of great satisfaction to feel that bees were at least no worse situated in a good or even poor depository than if out in the snowdrifts for so long a period. It is true we have not had to shovel out the hives in order to allow the bees to have a cleansing flight, as would have been a necessity had an occasional warm day occurred. Those further south than Michigan, no doubt, have had sufficiently unsettled weather to enable their bees to fly; but, so far as I can learn, this State, while in latitude differing widely, has not materially differed in cold. In fact, our extreme cold here has been less than elsewhere in the State. We have no signal office here, but we have in many private yards thermometers, none of which have registered more than 20° below at any time, and only once at that, which was in December; since that, two or three mornings 15° to 17° below. Now, in my yard where the bees usually are in summer the snow is a smooth compact drift two feet deep (March 12); I need not write how much trouble my air tight multi-ventilated water-lime cellar has saved me this winter; and now, while the March winds are blowing, the bees are as contented as they were a month ago. They can be kept another month with the facilities of ventilation possessed with little inconvenience. Then comes the one thing not enjoyed by bee-keepers; viz., getting them out on their summer stands. It is not certain how they will come up out of the cellar. Last fall an elevator was provided to lower them into the cellar, and the machine was a great success; but the bees then were in no haste to fly out. A month hence it will be different, and perhaps they will be carried upstairs with less trouble some other way.

Farwell, Mich.

A FEW POINTS ON SHAKEN SWARMS.

A Method of Management for Comb Honey whereby one Can be Away from his Bees all Day without Danger of Swarms Leaving.

BY GEORGE SHIBER.

One of your correspondents, p. 289, asks for a plan of management of bees during swarming, saying that he had tried shaking them, but they all swarmed out, and

THE INTERIOR OF KOEHLER'S EXTRACTING ROOM.

that he had to leave his bees from 7 A. M. until 6 P. M. each day.

Years ago this swarming business was a more serious problem than now. If my friend Sturm's bees all absconded after shaking there must be faulty management somewhere. He says he "shook three," and three absconded.

For his benefit and that of any one else who is bothered in this way, let me tell how I manage forty colonies, and was obliged to be away from home the season through from 7 A. M. Monday until 6 P. M. Friday.

Every Saturday I went through the hives that were likely to swarm. Those that had queen-cells with hatched larvæ or sealed cells were treated as follows: An empty hive was prepared with six or seven Hoffman frames with half-inch starters and one comb of hatching larvæ. This new hive was placed upon the stand of the one to be operated upon. Previously the old colony was thoroughly smoked to cause them to fill their honey-sacs.

An empty body was placed on the new hive (no cover on the new hive); the old hive with bees and combs on this empty body; over the top, place one of Dr. Miller's robber cloths; smoke under the cloth, flopping it as you smoke; then quickly pick out each frame and shake into an empty body below; place combs of brood, now free of bees, in another body, and place it over a weak colony. Now go back to swarm; sweep the bees down into their new hive from the sides of the empty body on to the six frames of starters and the one comb of brood. This comb of brood can be taken from the shaken hive, but see that there are no queen-cells on it. Now put the supers on from the old hive. Perhaps there was one super on the old hive, partly filled. If so, put another one empty underneath. Cover them up, and, if clover is in bloom, they will do you some good. I shook perhaps 25 or 30 last year, and never had a failure. Some years they have swarmed out, but not many. The ones most likely to swarm out are the ones with a sealed queen-cell. I have figured that they have planned to swarm, and they seem to think it natural to do so, whether they were shaken the day before or not. Not all will do this; but these are the ones that do, if any. Place a shade-board over the shaken swarm, and give them a good deep entrance.

The old combs of brood placed over a weak colony can be used for extracted honey, for in a week or so they will be quite strong; and if the season is prolonged they will gather quite an amount of extracted honey.

One thing more — I have concluded that combs are better to shake bees on than starters, if I have them; and I get more honey from such. I usually use about six combs. Bees will at first fill these combs with honey; but in a few days the queen will need all the room in six combs to lay in, and the honey finds its way upstairs. Starters are more profitable to use than foundation, for full sheets to fill six frames will cost about 35 cts., and I don't think you make any more by the use of it over starters.

The queen will lay more readily in old black combs than in new ones, so the new comb from foundation the bees fill with honey before the queen uses it, and then seem loath to carry it upstairs; but with the black comb, instinct seems to teach them that that is the place to rear brood. The plan of forced swarming is certainly a long step in advance.

Last year I managed forty colonies on the above plan, secured a good crop of honey, and devoted only one day in the week to them; all this takes practice and time to learn and become familiar with. I have been twenty years learning how, and want to learn more.

Randolph, N. Y., March 28.

A HOME-MADE UNCAPPING-DEVICE.

Some Good Ideas.

BY C. J. GREENE.

As there may be others who, like myself, do not feel that they can afford to buy one of the expensive uncapping-cans as shown in the catalogs, and also want one that will hold several frames after they have been uncapped, I submit the following description of an inexpensive uncapping-tank.

The tank is made of one piece of galvanized iron 28 inches wide and 40 long, cut at the corners and turned up to form a pan 18¼ ×30 outside measure, and has a honey-gate soldered to one end at the lower corner so as to drain the pan. This tank is placed in a box made of half inch lumber, which is 18¼×30 inside measure, and 5½ inches deep, with legs at the corners which extend below the box about 11 inches, the front legs being made an inch shorter than the back legs, to allow the honey to run toward the gate. In making the box, first nail the sides to the inside of the legs, even with the outside edge of the legs; then let the ends extend to the outside of the legs. This leaves the box with square corners inside. The front end is notched over the gate, and held in place by four screws. By removing this piece the tank can be lifted out and used on the kitchen-range for bottling honey, etc. This is one of its useful points. Over this tank is placed a frame made of 1×1-inch strips having the same inside measure as the box, and covered with wire cloth, the same as is used in extractors, and supported by 3 cross-strips which may be V shaped, with the sharp edge next to the screen — see B B. The screen is held in place by four small brads which are outside the box next to the legs. Above the screen is a box made in the same way as the lower one, but without bottom, and twelve or more inches deep. On top of this is fitted a sliding frame, see D. This frame is made of two pieces of 1×1 inch, two inches longer than the width of the tank, and three cross sticks, 6 inches long. At the ends on the under side are nailed ½-inch strips to hold the frame in place. This frame is for frames to rest on while uncapping.

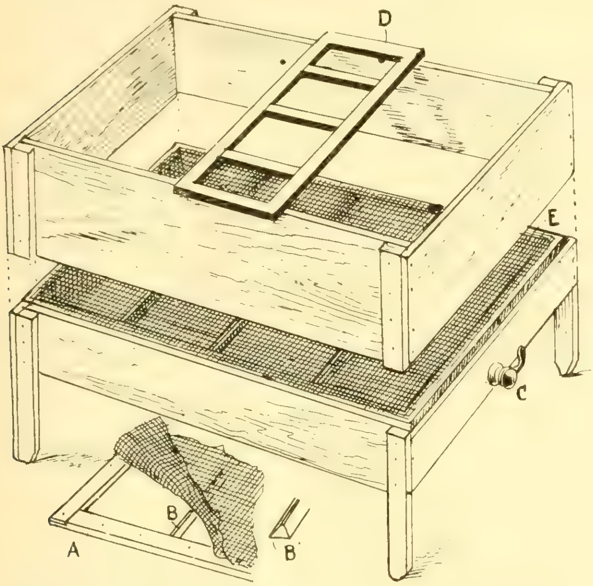


Fig. 1.—Upper and lower case, with screen E; rack D; gate C; A, section of wire-screen frame showing triangular braces B B.

In operation draw the frame D to the end of the tank nearest the extractor, and uncap the first extracting-frame and drop it in the end of the tank, pushing resting-frame D along, and so on till you reach the other end of the tank. This distributes cappings evenly over the screen. Thus twelve or more frames may be uncapped and left to drip in the tank. When these are extracted, commence again.

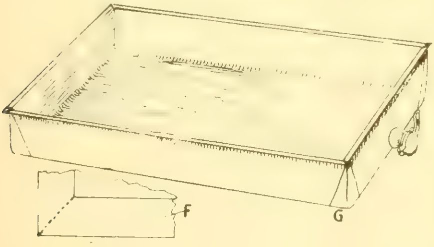


Fig. 2.—Galvanized tank of one piece; G, method of lapping the corners; F, flat metal showing how to clip corner before turning up.

If you wish to uncap more frames at one time, one or more supers may be placed on top to hold uncapped frames.

Now as to cost: The only part that needs to be paid for right out is the galvanized tank. Mine cost me $1.90, complete with honey-gate. Then the wire cloth for screen will cost a few cents. All the other parts may be made at home, from lumber of packing boxes, or such cheap material, so you see it is a very cheap arrangement for so useful a one.

The legs and corners are made of 1×2 in. strips. The object in having legs on it, rather than a solid box, is to allow you to stand closer to it in working.

Owens Mills, N.Y., Feb. 25.

[Your ideas are most excellent, and come at a time when the bee-keeper may make a machine and have it ready for use this season. The only suggestion or improvement that I would make would be to make frame D narrower, and mount in the middle of it a nail-point projecting upward, on which the end-bar of the frame to be uncapped can be pivoted.

But, say — when the wire cloth has been heaped up with cappings is there not danger that the honey drippings would run over the sides? To prevent this I would suggest again that the tray have a raised rim of two or three inches. Our artist failed to show the bottom tray notched out to receive the honey-gate for removal of the pan.—Ed.]

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SECTIONAL BROOD-CHAMBERS.

Some of their Principal Advantages, and an Important and Valuable Suggestion on how to Make Forced Swarms Stay "Shook."

BY M. R. KUEHNE.

As you invite correspondence from bee-keepers who have used the sectional brood-chambers, i. e., two or more Ideal supers with shallow frames for a brood-nest, p. 23, I wish to give my experience with them, and also some other things.

I am well aware that perhaps locality as well as circumstances and the different management has much to do with one's like or dislike of using these shallow frames, which, of course, have their advantage as well as disadvantage; but I must say that, after using them side by side with the deep frames for quite a number of years, I have finally come to the conclusion not to invest in any more deep frames.

As to disadvantage, I could mention a very serious one, especially where one practices migratory bee keeping — that is, to fasten two or more supers so they will stay fastened in moving over rough roads of different descriptions, especially in mountainous countries like California. But there is surely one great advantage in using a shallow frame where one has out-apiaries and has to use the force-swarm method; and this is, the bees will build more worker comb after they are shaken off on to two half-bodies, and the final removal of the lower half. I have had them build every comb of the ten used worker-cells; but more often the outside combs, and perhaps one or two more, would contain small corners of drone cells, which corners could easily be cut out and replaced with worker comb; whereas, by using the deep frames I had no end of drone-cells, besides the trouble of making the bees stay.

This question of making them stay after shaking off has troubled many bee-keepers besides myself a good deal formerly; but by close attention to *details* this trouble can be easily overcome. When I first practiced the shaking-off plan I would, as many do it to day, shake the bees off after they indicated their intention to swarm by depositing eggs in queen-cells. I thought I had no time to fool away. As a rule I had to hive them again the next day, and perhaps a few times more, thereby losing more time than if I had done it right at first.

The first instructions I had about shaking off bees, as given by Mr. Stachelhausen, plainly point out that the prospective swarm should be thoroughly aroused by smoking, and pounding on the hive, so that the bees will fill themselves with honey, just as they do before leaving the hive as a swarm. Is it any wonder the bees refuse to stay in an empty hive with a prospect of starving before them? It took me quite a while to find out that this arousing the bees was the most important point; and I find that many bee-keepers entirely overlook this, and therefore denounce the forced-swarm method as impracticable—the same as I reasoned not so very long ago.

But, to come back to the shallow-frame and hive question. I consider the use of the shallow hive as invaluable in the production of comb honey. After I reduce the hive to but one super, with every frame of the ten filled with brood, eggs, larvæ, the bees have simply no room for storage of honey, and therefore all has to go up into the sections. Plenty of bees hatch every day, so the queen has empty cells to lay in. This has to be closely watched, as the queen must be given room to lay in or she will swarm out.

Of course, this makes extra work; but who would not be willing to do a little extra work for a superful of nice honey? When the honey season draws to an end, the section supers must be taken off and shallow extracting-frames given for the bees to fill for winter or they will starve.

To sum it all up, the whole secret of success is not so much how you do things, but how *conscientiously* you do things — how much attention you pay to details. A very small item overlooked means failure, especially in comb honey production.

In closing this article I should like to ask the following question: Why do you not use white cottonwood for sections? This will bend as readily as basswood, if not better; is cheaper, and more easily obtained along our great river bottoms. There is a certain kind just as white as basswood, and takes as good a finish, to my knowledge. As to four-piece sections, it seems to me that would be too much tinkering when you have to put from 6000 to 10 000 sections together at a time. The only advantage would be that a bee-keeper could make them himself with very little machinery.

Pomona, Cal.

[The idea of getting bees well filled with honey before shaking is important, and may account for the failures of some who may have overlooked it. The reader may read this article over very carefully, and some parts of it he had better "paste in his hat."

Regarding sectional brood-chambers, if the truth were known we would find that very few who have given them a comparative test (I know of only one) have abandoned them. There is not enough cottonwood for section-making.—ED.]

Heads of Grain
from different fields

SWARMS WITH CLIPPED QUEENS; THE POPPLETON SULPHUR CURE FOR BEE PARALYSIS A SUCCESS.

I write to ask about clipping the wings of queens. I have only twenty colonies, so of course I can not afford to put in much of my time around them. During the swarming season, I look at them at noon when I come from the field to dinner, and then look at them again just before going to work. What would be the result if I should clip my queens, and they should swarm when I am not around?

My hives all rest on the ground with only a little piece of board under them.

Would you advise me to clip my queens under the circumstances?

I had three colonies affected with paralysis about three weeks ago, so I tried the sulphur remedy of Mr. O. O. Poppleton, page 796, Sept. 15, 1903.

I made a small bag of cheese-cloth, put about a heaping tablespoonful of sulphur into it, then took out two frames from the brood-chamber, shook the sulphur over them thoroughly, then shook the bag in the space left by them; slid the next frame along, shook between it and the next, and so on through the hive. I think every bee on the combs got a thorough dusting with the sulphur, and there was plenty on the combs for the bees that should come in from the fields. I then dusted the sulphur in the entrance, and around the front of the hive on the ground. My bees seemed to be benefited immediately by the sulphur, very few dying after I gave it to them.

I suppose my plan takes a great deal more sulphur, but it saves a great deal of time, and the amount of extra sulphur used is of less value than the extra time saved in applying it. A. B. JUDSON.

Escondido, Cal., Mar. 7.

[I would clip the wings of the queen and then follow the plan outlined by Geo. Shiber on page 441.—ED.]

HOW TO PUT CANDIED CHUNK HONEY INTO MARKETABLE CONDITION.

I have 300 or 400 lbs. of chunk honey that has granulated, and is of dull sale at any price. Can I heat this hot enough to melt cut the comb, and feed the honey back to the bees? Will it injure it by heating? Would you dilute it with water? Is not this honey more liable to start robbing than granulated sugar? My wish is to feed this honey at once before putting on surplus cases, so as to have them strong for the honey harvest. J. W. MARTIN.

Greenwood Depot, Va., Mar. 31.

[The chunk honey that you refer to can be best treated with a very slow moderate heat. It should be set in a warm room back of the stove, where it will get a temperature of about 100 degrees or a little more, but be careful not to let it get warm enough to melt the wax. It may be necessary to put the honey in tin pails, and the pails in a wash-boiler of warm water heated to a temperature of about 110. This will cause the honey to melt, leaving the wax in its original shape. After the honey is all melted, drain off that portion which is free, and put the rest in a regular wax-press and squeeze the honey out. When it is drained clear, apply heat, and melt the wax. You will thus be enabled to get the honey free without spoiling its quality, at the same time getting the wax in marketable condition.—ED.]

A SHORTER WAY THAN THE HEDDON SHORT WAY OF TRANSFERRING.

You advise, page 340, the Heddon short method of transferring. This seems to me a rather long way. Why not shorten it the way I have been doing with entire success? Fill the new hive with full sheets of foundation; give drawn-out comb if you have any, and it will work still better if you can put a little brood, even only a few cells full (of course unsealed) into the hive; but neither of the last two is absolutely necessary. Go to the hive to be transferred; remove it; put the new hive in its place; put on a queen-excluding honey board, then a reversed Porter escape-board without escape. Now drum the bees out of the box hive, the same as in the Heddon, then with saw and square make the bottom ends of the sides of the box hive perfectly square. Put the box hive right side up over the hole in the bee-escape, then dump the bees out of the hiving-box in front of the new hive, and the job is done. In three or four weeks' time lift up the box hive; put a bee-escape into the board. Next day take off the box-hive bee-escape, and honey-board, and put on super and hive-cover; cut out the combs from the box hive; extract what honey there may be in them, and melt out the wax.

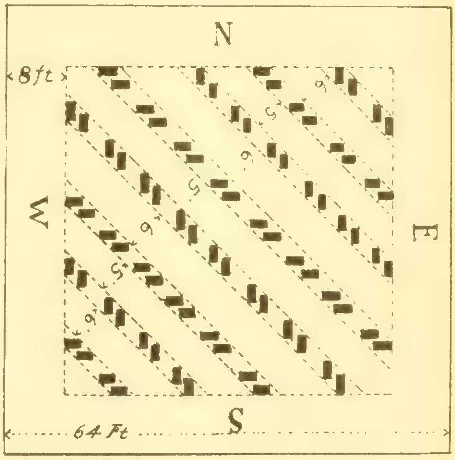
I have found the foregoing the easiest and best; and the best time for my locality is the end of April or first of May. The hives so treated will seldom swarm, but give plenty of honey in sections, as these will be put on just at the commencement of clover.

If you want to Italianize at the same time, sift out the old queen; give some comb with honey; let new queen and bees run in together, but for a day or two put on a cover and then place the box hive over the escape-board. L. H. WILLMER.

Napoleon, Mo., Apr. 5.

ARRANGEMENT OF AN APIARY.

Mr. Editor:—I herewith hand you a crude drawing of what seems to me a very good arrangement for hives on a small plat of ground. The hives, as you will see, front east and south alternately, leaving a back alley between each pair of rows entirely free of bees. Hives set in pairs, on this plat of 48 feet square, give a space of 4 feet between each pair of hives, and 8 feet from center to center of pairs. Eighty colonies can be provided for nicely in this way, on such a plat of ground. The alleys are wide enough for all practical purposes. I have tried many forms of placing hives, but I like this better than any other.



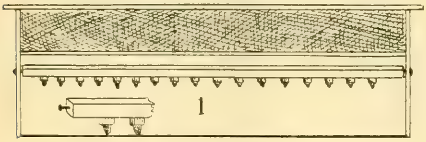
WM. M. WHITNEY.

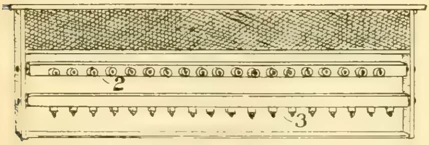
Lake Geneva, Wis., Feb. 9.

[One objection to having hives on the zigzag or the cata-cornered plan is the difficulty of cutting down weeds or grass with scythe or lawn-mower, particularly the latter. I think it was J. F. McIntyre, that extensive bee keeper of California, who once had zigzag rows; but when I visited him he had abandoned it and was using the straight-row rectangular plan.—ED.]

A TILTING CELL-BAR.

I am pleased to see the articles on queen-rearing in GLEANINGS. Your journal grows better every year. I see they all set the frame down on the top-bar with the bottom-bar up, as you have it on page 20. I wish you would try my plan. When I was in the greatest hurry I would be sure to knock the frame over and break off some of the cells; so I got a bottom-bar, cut it off just a little short of the one already in, and drove a nail through the center of each end-bar, and in the end of extra bottom bar so it can turn around—see Fig. 1. I lay the frame flat down on the bench I am working on; turn the extra bar so the flat side is up, ready for cells, as shown in Fig. 2. I fasten on the cells and do other work, and there is nothing to tip over. When the work is done I pick up the frame, turn the bar so the cells are down, and start for the hive.





Mayfield, O., Jan. 19. G. W. HAINES.

WINTERING IN THE CELLAR; VENTILATING THE HIVES AT THE TOP.

I notice in GLEANINGS, Feb. 1, an article on cellar wintering without ventilation, by Ira Barber. As I have had an experience of 53 years in bee-keeping, perhaps some words of mine in regard to ventilation and wintering bees might prove helpful suggestions to those of less years.

For 36 years I have wintered bees in the house-cellar, where I now live, with no ventilation during the cold weather up to about the first of March, except a five-inch stove-pipe hole in a chimney which goes to the cellar bottom. After that time, when the weather is warm we open the cellar windows during the night, to let in the cool night air, and close them during the day to make it dark, and keep out the warm air of the day.

Up to this writing, Feb. 8, they are very quiet, and I have over a hundred colonies in the cellar. I put them into winter quarters about the last week in November, and take them out about the first of April. I too am in about 44½ north latitude.

An important factor to be considered is the ventilation of each bee hive at the top, also a small hole at the entrance.

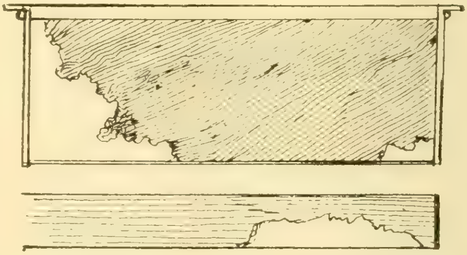
Newbury, Vermont. JAMES LANG.

[Your practice is to give ventilation, and plenty of it, when the bees need it; and even during mid-winter the chimney-pipe changes the air—it *must* do so.—ED.]

COCKROACHES OR FIELD-MICE.

Dear Bro. Root:—I feel a good deal disposed to say, "Why didn't you tell, if you knew?" and this is the matter. My three hives were left just where my good neighbor caught the swarms, in the grass under the orchard trees. When I made cursory examination of them in the fall the frames were so bound together with brace-combs that I dared not attempt to take them out. But I noticed a few stray cockroaches on the frames. I asked my friend (from whom I got the bees) about them; he said they did no harm. Not satisfied, I consulted the A B C book, and found no mention of cockroaches. So, while not wholly at ease on the matter, I did not investigate further at that time.

Ten days ago I brought two hives from town and set them in my back yard so that I could observe them. On weighing them, one weighed 27 lbs. I took advantage of a warm day to open up. On lifting out the division-board at the side, it proved to be literally covered with big cockroaches, and I was kept hopping with both feet trying to kill them as fast as they fell to the ground. Lifting out a couple of frames, the real state of the cause was manifest. The comb at the lower rear end of all the frames was gnawed off about as I have tried to indicate; and the bottom of the hive, to a depth covering the bottom of the frames, and causing them to mildew, was a refuse of comb and dead bees. I moved all the frames and scooped out about a pint or more of this rubbish, killing as many cockroaches as I could get at.



Now, this happened to a strong hive, with some stores still remaining. The other hive that I brought to town was the one to which I introduced the queen last fall, spoiling two frames of stores in so doing. It weighed only 23 lbs., and I concluded that feeding should not be delayed. There were a few cockroaches visible on the frames; but the floor was as clean as could be desired. The strange thing to my mind is, why did the cockroaches thrive so in the strong hive? Could it be that they sheltered themselves behind the division-board? for in bungling the queen business I couldn't put back the board in that hive.

AUSTIN D. WOLFE.

[Under date of March 8, Mr. Wolfe adds:]

A little further light causes me to exonerate the cockroaches, and charge the mischief elsewhere. As I looked over the frames taken from that hive which was all "chawed up" (and this was done some days after the damage was discovered), the bottom strip of one of the frames was found gnawed in the shape indicated in the margin. I suppose field-mice took up their abode in the hive during the winter, and escaped without being seen after I had moved the hive to town.

Yesterday I observed that the soft maples are in blossom, and the air is vocal with the hum of bees. The two hives which I saved are at work finely, and there is a cloud of whitened bees over the pan of mingled rye and graham flour with which I baited them a day or two ago.

My aged acquaintance, Ed Lanbelin (better known in this vicinity as "French Joe"), said to me not long ago as I sat in his honey-house, "An' Root, you càn trade wid heem; I tell you, dat is one hones' man. Eef I buy an' sen' heem two cent too much, he sen' me postage stamp back." I was glad to hear the endorsement from the old fellow, 76 years old, but far from the kingdom.

AUSTIN D. WOLFE.

Parkville, Mo.

[Your second letter fully exonerates the cockroaches, and places the blame where it probably belongs — on the field-mice. The former are often referred to by our subscribers, but I do not remember to have seen any report where they did any serious damage; but mice, when they get into a hive, will soon work hăvoc with the combs. They like nothing better than a good warm hive to nest in.

Our artist has made your gnawed comb look as if it were made of a pine board. The reader will have to imagine that it is a real comb.—ED.]

IMBEDDING WIRES WITH A NOTCHED NAIL-POINT PREVENTING FOUNDATION FROM BUCKLING.

For imbedding wires in foundation I use an eight-penny wire nail with a notch filed in the point. I lay the nail on the stove while I fix the foundation in the top-bar, and then lay the frame over a piece of board the size of the sheet of foundation so the wax lies flat and the wires touch it all along. Then I run the nail along the wires, pressing them in a little. I worked in the kitchen evenings, and with the heat of the room and table-lamp the foundation was warm and limber. I never had any foundation buckle in the least. My neighbor worked in his cold barn, and his sheets buckled all out of shape.

N. A. SPARHAWK.

Melrose, Mass., April 4.

[This same plan has been before advocated, but no heat was applied to the nail. The heat will, no doubt, improve the quality of the work.—ED.]

FOUR BY FIVE PLAIN OR 4¼ BEEWAY SECTIONS; FRAMES WITH TOP AND BOTTOM BARS OF THE SAME WIDTH.

Dr. C. C. Miller:—As I expect to start an out-apiary soon, and, not being satisfied with the section that I am using, because of its being an odd size, I shall be highly pleased to have your advice as to which to adopt. I am thinking of using the plain $1\frac{3}{8}\times4\times3$, with cleated separators (not fences), as I think there may be something in Mr. Dibbern's objection to them on page 184. I believe that you or I could glue the cleats to 500 separators in a day by making suitable forms for the work. If I don't use the above plain section, my next choice would be the universal standard, the beeway, $4\frac{1}{4}\times4\frac{1}{4}\times1\frac{7}{8}$. Either of these will always be found in stock, and therefore cheaper than odd things like sections to nail, and quicker to put together. I noticed in your Straws that your present choice of a brood frame would be an unspaced hanging frame with top, end, and bottom bars all $1\frac{1}{16}$ wide. I can see excellent reason for that width in the top and end bars, which is, no burr pinning the brood-frames to the sections above nor to the ends of the hive, which the bees will do when the end-bars are only ⅞; but I beg to ask your reason for making the bottom-bars that width. Please place yourself as free to adopt any style of brood-frame, brood-chamber, and section you choose, and advise as to your choice.

D. C. COLEMAN.

Leavenworth, Kan., Feb. 22.

[Dr. Miller replies:]

You are certainly wise to avoid odd goods. As to preference for style of section, consult your market. If one kind sells for a higher price than the other, that has heavy weight. If market for each is the same, you will do well before entirely abandoning your present odd style to try both kinds side by side on a small scale, and see whether *you* can secure more pounds of honey with one than with the other, or the same number of pounds more easily with one than with the other.

It must be that I did not express myself clearly if I made the impression that I preferred *unspaced* hanging frames. I would not for a minute think of doing without automatic spacers for both side and end spacing.

I hesitated long before departing so far from the established fashion as to use a bottom-bar same width as tops and ends, but I could see no reason why there should be any difference (do you?); and whatever reason there might be for a certain width for tops and ends applied equally to bottoms—less need for wide bottom-bars when they come down close to the bottom-board; but when there is a deep space under them, and especially when in an upper story, the wide bottom prevents building comb between. I have now no trouble whatever with burr-combs built between two stories of brood-frames. C. C. Miller.

THE FOUL-BROOD LAW IN CALIFORNIA.

The prospects here are very flattering for a big honey crop, as we have had abundant rains since Feb. 5. In fact, it has rained almost every day during March. Bees are breeding up very fast; and if the weather continues warm they will commence swarming about Apr. 20.

In January, 1903, the legislature passed a foul brood law, whereby each county in the State, by petitioning the board of supervisors, is entitled to a foul brood inspector. But the law goes on to say that you must first establish the fact that foul-brood does exist, in the county in which you are desiring to circulate the petition. Here in this immediate vicinity we are free of it; but I have been informed that it is making headway in some of the surrounding counties, especially Santa Cruz.

If there are any parties knowing of its existence in Monterey or surrounding counties will they kindly communicate with me in the interests of the apicultural pursuits of this vicinity, with a view of having an inspector appointed that he may proceed at once to check the dread disease before it is too late? F. E. Gause.

Jolon, Cal., Mar. 30.

NOT ELECTRICITY NOR PHOSPHORESCENCE, BUT LIGHT REFLECTIONS; A REASONABLE EXPLANATION.

In regard to the phenomenon that W. S. H. speaks of, p. 289, I will say I do not think it was electricity or phosphorescence. I am of the opinion it was the reflection of light, although he says it was a dark night. But did he have no lantern with him, or were there no stars at all shining? What I do know to be a fact is, there is a spot about a bee's foot or leg that will reflect light equal to a diamond or crystals of sand or glass; but it can not be seen at all times. The light has got to strike them just so to get the reflection. The first time I ever noticed this was a few summers ago. One bright evening just before sundown the hive was facing the west; and as the bees were walking and twisting about on the alighting-board I saw those reflections of light, and it was a rather pretty sight to look at. I watched them for a while, although I have never noticed any thing of the kind after night; but I am of the opinion that those sparkles of light, or reflections, could be seen from the light of a lantern or the stars if one were standing just right. Will Mr. W. S. H. write again, and tell us if he had a lantern with him or not? N. Young.

Robertson, Ia.

A PLAN OF HANDLING SWARMS.

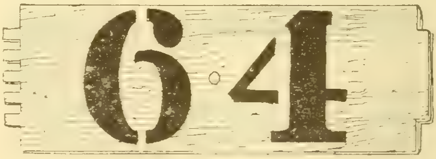
In answer to Mr. G. J. Sturm, p. 289, how to control swarming during the absence of the apiarist, I would say, clip the queen's wings, and one, two, or more days before a swarm is expected set the old colony to one side, then take an empty hive complete with top and bottom boards, and set it flat on the ground in the exact spot where the old colony stood with entrance the same way. Now place the old colony on top of the empty hive; and when the swarm comes out the queen drops down in front of the empty hive; and when the bees return, the queen crawls into the empty hive, and the bees follow. In the evening take the old colony to another stand. W. W. Coolidge.

Windsor, Wis., March 28.

[This plan is quite in line with the general practice of our most successful beekeepers. See also page 441.—Ed.]

BROKEN SECTION PIECES FOR NUMBER TAGS.

I find my way of numbering my hives very satisfactory. I send a sample. Most of us have some broken sections on hand. I put the numbers on with a stencil, and then, having some varnish on hand, I went over the number with it. I doubt if this was of much advantage. I then dipped them in boiled oil. H. Langton Johnson.



Chilliwack, B. C., Jan. 14.

THE PRICE OF BEE-YARD HELP IN CALIFORNIA.

Can you tell me about what wages an experienced apiarist could get in Texas or California? Could one get work the whole year? C. L. W.

Randolph, Vt., Apr. 4.

[I am not able to give you very definite information. Labor is higher in California than in the central part of this country; but I am under the impression that good help could be secured all the way from $40 to $60 a month. If board and washing were included, the price would be less in proportion, of course.—Ed.]

OUR HOMES,

BY A. I. ROOT.

Let us not be weary (nor worried) in well doing; for in due season we shall reap if we faint not.—GAL. 6:9.

Perhaps, friends, I am taking a little liberty in adding to a scripture text; but the words I have put in the parenthesis are by way of explanation—like a footnote, for instance; and my opinion is, although I am not a translator of Greek, that the word *wearied* would include *worried*. And, by the way, what a beautiful text that is, any way! We often admire great speakers or writers for their skill in putting grand thoughts into few words; but has there ever been a writer or speaker since the world began who could put more thought into a few simple words or phrases than Paul, the great apostle to the gentiles? The words of my text are an illustration of that fact—let us not be *weary* in well doing. Many times when our friends meet with discouragements and repeated losses we try to say something encouraging. We often say, after expressing our sympathy, "Do not take it to heart too much. You probably will have better luck next time." Or, "It is a long lane that has no turning," and many such expressions. But just compare all these words of sympathy and encouragement, coming from the average person, with the thought in our text. The man who has lost his house and home, and may be his wife and loved ones, may have been an earnest, honest hard worker. It does seem as if some people were especially unfortunate; but our text says to such, first, do not think of giving up your principles and industrious habits. Keep on, and, even though you have slurs and jeers cast at your past integrity, hold fast to your faith in God. And then how beautifully worded is the promise—in due season, perhaps not right away! May be there is more bad luck, as the world puts it, still in store for you; but if you just keep on, and hold fast to your faith, you *will* reap your reward. The condition of this reward is that you do not become faint-hearted nor get it into your head that there is no use in trying so *hard*, any longer, to do *right*.

Just day before yesterday these words came into my mind like sweet music. I repeated them over and over, mentally, and it sent a thrill through me every time. It seemed to stand out beyond all other Bible texts and promises. It seemed like a bright star on the face of the heavens. Once in a while these beautiful scripture promises come to me in just that way. It seems as if their meaning and hopefulness were illumined by the Holy Spirit; and such revelations come to me oftenest when I am giving up my own plans and projects, and working for something else or for somebody else. And now if you will listen I will try to tell the little story of what brought this text to mind.

Last fall I sold off the last of my greenhouses. For the first time in many years I did not have any plants to work with and to pet and love during the whole winter. Along in February I felt as if I could stand it no longer. I subscribed again for two floral journals and built a little greenhouse; but I shall have to tell you in another department about that greenhouse that was built in winter.

Monday morning, April 11, I was out in this little greenhouse when the sun was just coming up. I had planned quite a number of improvements and work to be done among my pets I had my breakfast quite early so I might finish before my *regular* business in the factory. Just then Ernest came in hurriedly to say that he was wanted at Columbus immediately in reference to the Brannock local option bill then pending. He said there were particular reasons why *he* could not leave home, and added:

"Now, father, I want you to go in my place. You can look after what is to be done, may be, better than I can; and it will be in the service of the State, just at a time when the influence of every good temperance man is needed."

To tell the truth, I did not want to go a bit. I have been traveling around quite a little lately, and I wanted to stay at home. Besides, I dreaded pushing myself into the presence of public men, especially the bright young law-makers of Ohio. I am not enough of a politician to keep posted even in the affairs of the State and nation. I knew I should expose my ignorance at every turn; and then came a feeling such as I have mentioned when I wrote about my Sunday-school class and the flying-machine—that I was getting to be too old to be of much account; my influence would not count very far, any way, etc. I mention this, dear friends, because I am persuaded that all elderly people have similar temptations. Of course, there is such a thing as pride in trying to show people how smart you are, etc.; and I confess that, in my younger day, I had a good deal of pride and ambition; but, thank God, that has all gone by now. Whenever I can do any good, however, for my State or nation, I hope I am ready to do it. God knows I do not relish pushing myself forward.

I hastily gave directions to one of our boys to take care of the greenhouse until I returned, and then was off on the train. At the depot I met our Representative for this district, and was pleasantly surprised to find him so ready and so glad to tell me all about the temperance work in the House, and the prospects of the Brannock bill in the Senate; and when I left him it was with a feeling that, if we had many more clean, bright, honest, scholarly men like him among our Representatives, we might thank God and feel hopeful over the State of Ohio.

When I met our attorney for the Anti-saloon League in Columbus I was again surprised to find *him* so glad to see me. In a little time I was introduced to members of the House and Senate who were foremost in pushing our temperance laws. Perhaps I might mention here that, when the bill went through the House, there were 72 votes for it and 36 against it. When it came up before the Senate there was a tremendous determination on the part of the brewers and saloon-keepers to block its passage. Unfortunately, Governor Herrick seemed to be on the side of the wets — at least he announced publicly and privately that the bill was not fair. This was a profound surprise and a deep regret, not only to temperance people but to the press generally throughout our State. Let me digress a little.

When I approached the Hayden building I inquired of a bright, clean looking, middle-aged man if he could direct me to the rooms of the Anti-saloon League. He replied, "They are on the sixth floor. As I am going right up there I will gladly direct you."

As the elevator started he said, "You are one of the temperance folks, I take it."

"I sincerely *hope* I am. Are not you one also?"

"Why, yes; I believe in temperance to a reasonable extent."

"Well, my friend, is it not a 'reasonable extent' to ask that the *majority* may rule?"

"Why, I suppose so. But you temperance people want the whole earth."

I was astonished at this, but I tried to hold him down to my point, and I replied again:

"But, my good friend, is it not according to the spirit of the institutions of our country that we should *have* the whole earth if the *majority* is on our side?"

He looked so bright, intelligent, so gentlemanly, and so well educated, that I believed him to be reasonable; but I had evidently provoked him without meaning to, for he replied:

"Yes, yes; I know you folks got a big victory through the House, but it was by fraud and unfair means.* Now, I occasionally want a drink of beer myself; but I do not want to be obliged to go half a mile after it."

By this time we were up at the top. He courteously pointed me to the Anti-saloon rooms, and his natural good breeding prevented him from showing an uncivil spirit. It seemed to me, however, that this conversation gave me a key to the situation. There are a good many rather nice people in Ohio who do not relish the idea of letting the majority rule when it comes to blocking the way toward their accustomed drinks.

It was one of my happy surprises to find such a nice lot of clean men, not only in the House but in the Senate. Some eight or ten years ago I made a similar visit to Columbus on a like errand. At that time the whisky element seemed to have the upper hand almost everywhere. I said again and again in my heart, "May God be praised for the new order of things." The men who had been elected by the people of Ohio, both in the House and Senate, were, as a rule, not only temperate but temperance men; and, I think I may truthfully add, gentlemen and scholars besides. Mr. Fisher, the Representative from this county, seemed to be a pretty fair sample of all the rest. When I asked Ernest what had happened to make such a change in the management of our State, he replied, "Why, that is the work of the Anti-saloon League, the W. C. T. U., and other temperance organizations. The Anti-saloon League has especially *declared* that no man who favors the saloons or the liquor-traffic shall get a place among our law-makers, and they are just beginning to make themselves feared."

Tuesday afternoon, about three o'clock, the fight was opened. The champion of the temperance people was Senator Chamberlain, of Lorain Co. As my hearing is a little defective I got in early and chose a position on the seats saved for the audience, pretty near the speaker's stand. In doing this I did not notice I was quite near Senator Chamberlain s desk. I had shaken hands with him before dinner; but owing to the confusion incident to being introduced to so many different men, all of them bright, clean (and, I think I can safely say, *good-looking*), I could hardly remember one from another. As the session opened, Senator C., looking round, caught sight of me, and gave me a pleasant smile of recognition. Now, I did not know who it was until I happened to notice his name on his desk. He probably saw my look of embarrassment, and watched my face while I slowly caught on to the fact that he was the one I was most interested in—our advocate. Let me digress a little right here.

I have several times spoken of the wonderful power there is in a *woman's* smile. I have mentioned its dangerous power for evil, contrasting its power for good in uplifting humanity. When I was a younger man I sometimes almost feared the power of a woman's smile—that is, if a real smart bright woman should set seriously about showing me what she could do. And now I wish to say something about the power and uplift that may come from a pleasant nod of recognition from a fine-looking *man*.

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* As there may be those among our readers who take the position that this man did, please let us consider it a little. It would be quite reasonable to suppose that the brewers might stoop to fraud or unfair means. They are after the money—nobody disputes that; but those who are working for *temperance* are quite a different sort of people. First, they are a class that would be very unlikely to be willing to use fraud or any thing unfair. Second there is no *money* in it for us at all. The temperance cause means money out of pocket, and that continually. I hope it is true that our ambitions and our aims are above those of a sordid nature. We are using our strength and our money to protect our wives and our children that our boys and our girls may grow up intelligent, God fearing men and women. And yet this man looked me in the face and charged us with gaining our victory by "fraud." It was a revelation to me, especially to find a bright, well-educated man give utterance to such logic.

I have somehow got the notion into my head that Senator Chamberlain is a good-looking man. May be it is just my notion, but I think his *wife* will agree with me, even if others do not. Well, if he had been a nice young woman instead of a nice young man, and had given me such a smile as that, I do not know but I should have been "worried" a little for fear I was not exactly loyal to Mrs. Root in being so much pleased over such a simple thing.

After a long delay, and after we were all tired out by other matters and preliminaries, the President of the Senate announced the Brannock bill. When Senator C. first came, right after dinner, he was happy and smiling; but just as the Brannock bill was called I noticed he looked pretty sober. Attorney Wayne B. Wheeler, who sat just over the railing, near him, also looked rather sober, and I thought both seemed to be a good deal worried. The brewers had given up trying to overpower us in *votes*, but their next best thing was to kill the effect of the bill by various amendments. Another bright young Senator across the room sprang to his feet and began. He first announced he was a friend of temperance, and particularly a friend of this local-option bill. He talked so well that it was hard to believe he was *not* in very truth what he claimed to be. But when he brought out his amendments I very soon decided that his purpose was to get us "rattled" and into trouble if he could. This man, Senator Oskamp, is one of the brightest young lawyers I ever listened to. Nothing could embarrass him. He never got mixed up nor tangled, and he was as cool and deliberate as if he had the whole world right under the tips of his fingers. I could not help admiring him, even while I feared his logic. It had been decided by the temperance forces, for the sake of peace, to accept some of the amendments that would not hinder us very much, and Oskamp soon got the temperance Senator into a tangle. The President of the Senate himself declared one of the motions was, in his opinion, out of order. I tried with all my might and mental strength to grasp all the points of the situation, and to keep it clear in my head; but I got all mixed up. Senator Chamberlain was evidently somewhat put out and embarrassed also. Let me say right here that the President of the Senate was one of the finest presiding officers I ever met in my life. It rejoiced my heart to know that we had so able a man in Ohio to preside over such an important gathering. It evidently would require a little time for the temperance people to clear up their position.

Just here I began to pray most fervently for our cause; and my prayer seemed answered when the President announced that, *to save time*, they would go on and vote on the motion while the clerk looked up and straightened the matter, where he thought Mr. Chamberlain was out of order. In a few moments he announced with a pleasant smile that Senator Chamberlain was all right. Then they went on with the contest. For a time a part of the amendments were accepted by vote, and the champions of the brewers were becoming encouraged. Then the enemy made a mistake. They had such a great string of amendments the honest men among the Senators began to be suspicious, and the *noes* became more frequent. Oskamp kept on, however, presenting his amendments until there was a call for the "question" from all sides of the House. The whole body of Senators began to be impatient until it got to be the fashion to greet each new amendment with continual *noes;* and when *no* got to be the *fashion*, every amendment offered was rejected. It reminded me of a flock of sheep. After we had got the enemy on the run it was an easy job, apparently, to keep them going. The final decision was 27 in favor of temperance to only 6 against it — a wonderful triumph. Perhaps I might say it was an unexpected triumph.

It is a very hard thing indeed for me to sit from half past twelve till half-past six without leaving my seat. The room was densely crowded with men and women who were friends of temperance. In fact, the papers say it was the most crowded session of the season. It is very hard for me of late to sit very long in a crowded audience. When I was younger I could stand it for a brief season better than I can now. At half-past three I felt as if I should have to leave the room; but when I became thoroughly interested in the legal contest over the matter of saloons or no saloons in the residence districts of our State, I forgot my fatigue. After the little embarrassment I mentioned at the outset, I began praying that the Holy Spirit would move on the hearts of our Senators and guide them aright. When it came to voting, of course *I* could not vote; but, thank God, I *could* pray, and that most earnestly, for the voters. As the clerk called the names I prayed briefly, as the names were announced, that every answer might be *no*. Some of the Senators were undecided, and the clerk had to call their names twice before they made up their minds. At such times I prayed most vehemently—of course mentally — that the good brother might be influenced to say *no* instead of *yes;* and it seemed to me as if all who hesitated finally said *no*. Now, please do not fear, dear friends, that I am getting to be superstitious. The good Book says, "The effectual fervent prayer of a righteous man availeth much." That does not exactly come in here; but if the inspired writer had said, "Even the prayers of *blundering sinners* avail much," there might have been some hope that my prayers were doing some good. I do not know but some of the friends who have more confidence in hypnotism than your humble servant may suggest that the Senate was hypnotized into giving us this great temperance victory. To which I reply that I never before heard of hypnotism being used for any good purpose. If it really *has* come in so as to help us banish the saloons, I shall have more faith in it than I ever had before. I think we can all agree in this: That the presence of a large number of people, especially people of influence, *does* have, and always *will* have, its effect on our law-makers.

When Ernest wanted me to go to Columbus, and be on hand during the passage of this bill through the Senate, I could not believe my presence would do any good; but when the people of our State or any other State are so much interested in the framing of good laws that they will leave their work and be on hand when these bills come before the legislature, there is a much better prospect that such bills will be passed. Senator Chamberlain did not look toward me, nor smile, until his repeated calls for "question" had resulted in the calling of the names for the final vote, and then we had our victory. Then he turned to me and gave me *another* bright happy look, like the one I have described. As soon as I could get hold of his hand I repeated the words of our text, something like this: "Dear Bro. C., be not *weary* (nor *worried*) in well doing; for in due season you *shall* reap if you faint not." He had been *wearied*, and, if I am correct, greatly *worried*, with the unceasing, persistent importunity of the enemies of the bill in trying to break it down, amend it, or nullify it; but he held on and came out victorious. Somebody said to Bro. Wheeler just then, who was close to us, "Now, Bro. Wheeler, you can get some sleep, I suppose, and rest up for the next battle."

Permit me to mention incidentally that, just before the temperance bill was acted on, when I was tired, stupid, and perhaps half asleep, I thought somebody mentioned something that sounded like "foul brood." Then I heard the words "contagious disease." There was no excitement prevailing just then, and the Senators did not talk as loud as they did a little later when they got on to temperance. Then another Senator got up and remonstrated. Said he, "Why, this is a matter that concerns only a few persons. We can not afford to tax our State to further their wishes when only a few are to be benefited, or have any concern in the matter at all."

The first Senator who arose to his feet said, in substance: "Why, gentlemen, this is a contagious disease. It threatens to ruin the honey industry of the State. You say it is a matter of little moment; but I tell you I have received more letters in regard to this matter than any other bill that has come before the Senate."

Then he held up a great bundle of letters. Three or four others arose to their feet, and said, "And I," "And I," "And I." Notwithstanding, there was quite a number of Senators who did not vote at all. Out of 35, 17 were for the passage of the bill, and 3 were against it. Now, here is a big moral. On p. 276, March 15, Ernest put in an editorial, urging the writing of these letters; and this editorial, friends, was the means of securing this very just bill for the benefit of the bee-keepers of Ohio.

Before closing I wish to say that some of the best temperance talks I ever heard in my life came from the Ohio Senators at this session. Senator Carson, of Xenia, is a host in himself. He is not only an eloquent and fearless speaker, but he is one of the clearest-headed reasoners it was ever my privilege to listen to.

Later, April 20.—The above was dictated something over a week ago. Since then, to the astonishment and indignation of all the good people of Ohio, and almost the entire press, Governor Herrick, by threatening to veto the Brannock bill, induced the House to make concessions that have probably stripped this righteous law of perhaps half its force. Protests were showered in upon him from all over the State; but he defended himself by some sort of plea to the effect that such a temperance bill would ruin the Republican party, and so he pushed on in his course. It reminds me vividly of the celebrated Griggs nullification act; and it ought to be a reminder to all of us that that old spirit of carrying the day in politics by any means, fair or foul, has not yet passed by. The entire House and Senate are composed of good men, almost without exception, and everybody supposed the victory was complete. While I write, loud are the protests, coupled with some threats that the Governor's political life is finished. May be, however, there is providence in it. The nullification act I have alluded to roused up the churches; and the temperance people of Ohio are wakened to a fighting spirit now as they have never been before. The brewers and saloonists may be congratulating themselves that they have won a victory; but I think they are mistaken. Our excellent temperance advocate, the Cleveland *Leader*, suggests to the saloon element that it behooves them now to keep very quiet, and be careful how they rouse any further an indignant majority — indignant because just one man prevented the majority from ruling. For this reason the *Leader* suggests it would be good policy for them to give way very quietly without suits at law or any other protest when any community demands the abolition of groggeries.

Still later.—The Brannock bill is now a law, and is doing work. We take the following from the Cleveland *Leader* of April 20:

> The much-talked-of Brannock bill is now a law, Governor Herrick having signed it to-day. Representative Brannock, whose name the bill bears, sent down a new gold pen for the Governor to use in signing. Mr. Brannock thus got a prize souvenir. Ohio people can now begin to clear saloons out of residence districts. To Columbus citizens will probably go the distinction of being the first to take advantage of the law. To-night 62 citizens of the north end of the city surrounding the Ohio State University, a residence section with about 1900 voters, started out to get signatures for the petition for a local-option election. They felt sure of getting the required 40 per cent of the voters by midnight, and expect at election to wipe out the 11 saloons from the neighborhood.

To which I want to add, may the Lord be

praised! and may the good work keep marching on!

HIGH PRESSURE GARDENING
BY A. I. ROOT.

AN AUTOMATIC GREENHOUSE.

One reason for selling out my old greenhouses was the expense of caring for them, especially when I was absent. Unless heat is turned on and off, the ventilators opened and closed, and somebody has personal supervision, in almost any sort of greenhouse the stuff may go to ruin very quickly. If the ventilators are left open at night during a freeze, damage will be done. If they are left closed in the middle of the day—perhaps the very day after the frost—damage will be done again, by over-heating.* On this account I decided to give up my greenhouse and the work I loved so much; but, as I told you, along in February, when we had bright sunny days suggestive of spring, I felt as if I could not stand it without a place where I could see things grow, flowers unfold, etc. So I set about making an *automatic* greenhouse, or as near it as possible.

Peter Henderson, in one of his books, tells about a greenhouse that was constructed over a large cellar or basement. The man who constructed the basement afterward decided not to build, so he put a greenhouse on top of it, with a floor made of open slats. The air in the basement was constantly equalizing the air above, under the glass, so as to correct the tendency to get either very hot or very cold; and the experiment succeeded well with hardy plants, without any heat except that from the sun.

I have before mentioned that we have under the floors of our home a large basement warmed by exhaust steam, and hot-water pipes connected with radiators above. This basement is always warm—often so warm that we have to open the outside windows to cool it off a little. Well, I constructed a lean-to greenhouse on the east side, with two good-sized windows opening into it, from the large basement mentioned. This lean-to is only about 8×20 inside. This gives two outside beds of 3 ft. each, and a 2-ft. walk between them. In order to keep it as warm as possible, the beds are solid level with the ground outside, and the 2-ft. walk is simply the 2 ft.-wide trench cut 3 ft. into the ground. To keep the ground from caving in at the sides, I used roofing-slats, so there is nothing to rot or give way. This steampipe—or, rather, sewer-pipe—that carries the steam under ground runs across one end of it. This ground being always hot, we use this end of the house for colei and other plants that like lots of heat. I wanted to cut a door through from the cellar into my 2-ft. path so I could have access during stormy weather, without going outdoors. Mrs. Root has not yet, however, given me *permission* (?) to do so; but I think I can bring her around to my way of thinking after a while. She objects on the ground that the greenhouse may some time be taken away, and then there will be an unsightly opening in the stone wall. Of course, this doorway would equalize the air in the greenhouse with that in the cellar still more perfectly.* The glass is double thick, A quality, 12 inches square. The rafters or sash-bars are of cypress, 2×2½ inches. They are rather heavy, but I wanted them to reach nearly 10 feet without any middle supports, for reasons mentioned later on. The glass was slid in grooves, without any putty, butted together, of course; and I now have the most perfect roof overhead I ever had in any greenhouse. The slope is about 3 ft. in the length of the 10 foot rafter; and there is not a particle of drip, and hardly a crack where you could push in a sheet of writing-paper. When ordering the glass I explained what it was for, and told them it must be cut exactly square. When the boxes were opened I found a slip of paper saying if there was a light in the lot that was not perfect in cutting and in quality I should let them know. The glass came from the Diamond Glass Co., Cleveland, O.

Now, it is usual for florists to whitewash the glass, say some time in April, when the sun gets to be very hot. I do not like this whitewash. Early in the spring it is a detriment, and it is also a detriment on cloudy days and all winter long and mornings and evenings. The appearance of a greenhouse is always marred, in my estimation, by being daubed with whitewash or any similar preparation. Now, here is what I did: I went to the store and got the largest and strongest curtain-fixtures I could find. But even these were not of sufficient length; so I spliced them with a round stick of exact-

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*Just at this present time, when competent labor is so scarce, everybody is studying to get what he wants done, without much expensive help. A man who can care for a greenhouse, and will *remember* to care for it, costs money. With a little private affair one can not expect a man to stay in the greenhouse all day long. He must have other work somewhere. But the average man, when he gets busily engaged in this "other work," will, as a rule, forget his greenhouse.

*Most of us have found out that very few plants do well in a room heated with a furnace or radiator. The air is too dry. I have had to move our house-plants into the kitchen, where they had the benefit of damp air from the tea kettle in order to have them do well. A good greenhouse should have a damp atmosphere a greater part of the time. If we open the ventilators when there is a cold north wind, this wind damages tender stuff, and drives the moisture from the air and soil. I decided long ago that some method of keeping down the temperature during sunshiny days, *besides* opening the ventilators, would be a great desideratum, and now I have it. As a rule, all the ventilation our greenhouse gets is through those two windows that open into the basement mentioned; and this basement, being under ground, is always more or less damp. The air that comes through the outside windows, before getting into the greenhouse, is warmed in passing the steam-pipes in the basement. This warm basement keeps *up* the temperature during cool nights, and keeps the temperature *down* during sunshiny days, and at all times sends a rather damp atmosphere into the greenhouse.

ly the size of the curtain roller. The splice was made by driving the wooden roller into a tin tube about a foot long, the two wooden rollers meeting in the middl of the tube. Then I used cheese-cloth for curtains. Two curtains, about 9 ft. wide, shade the ground. When the sun becomes too hot you simply grasp the pole at the bottom of the curtain, pull it down to the eaves, and hook it on a couple of nails. In the afternoon, when the dwelling shades the greenhouse, the pole is loosened and the spring in the curtain-fixture rolls it up in a jiffy. To work curtains in this way there must be no posts nor supports under the rafters Now my greenhouse works beautifully; in fact, the whole arrangement has been a bigger success than I often have. It is now full of flowering plants; and about all the attention required is watering. Of course, it is better to manipulate the curtains so as to give the plants the full sun mornings and evenings; but if Mrs. Root and I both want to be away, the curtains can be left down permanently for a day or two. In this case but little watering would be needed. To get rid of frequent watering as much as possible I have adopted the following plan:

The plants are all in pots. These pots are plunged into the soil of the beds, not only to the rims, but a little deeper. The soil is all good potting soil, made of old well-rotted manure so that it will break up fine, with the proper amount of sand, some bone meal, ashes, or soot from the chimneys, some swamp muck, etc. This is easily worked and dug. To plunge a pot, I use an iron spoon, such as they generally use in the kitchen for a basting-spoon. The edges are made very sharp with a file. This spoon makes a tiptop post-hole digger, if you will excuse the term; and I do believe a large steel spoon with a handle like that of a common auger would be a splendid thing to dig post-holes. With this spoon I can make a hole for a pot very quickly.

Now, one great reason why plants do not thrive is a lack of drainage. Every pot should have at the bottom broken crockery, or, better still, lumps of soot from the chimney, broken-up coals from the stove, or something of that sort. I prefer the charcoal or soot, as it is lighter than the broken crockery, and possesses more or less fertility. For very small pots, use just a little moss. Now, plants need air as well as water and fertility. They must have air to do their best; therefore I take my iron spoon and make a hole a little lower than the pot is to go. The spoon is pointed, you know. This leaves a cavity under the bottom of the pot; and if you should neglect your pot so your plant gets pot-bound, it will send a lot of white roots down into this cavity.

The above may not be a new invention, but it is a wonderful invention for me with my own greenhouse. Plunge the pots down to their rims, or a little more, so that you can rake the soft soil right over them; then give the whole bed a good watering. The cavity under the pots will prevent injury to the plants from "wet feet." I should have mentioned that, in making up the beds, drain-tiles every two feet not only gives perfect drainage, but the tiles allow air to work all through the soil, and up into these cavities I have mentioned, left under each pot. You will now readily see that plants potted and plunged in this way are not apt to suffer from drouth, even though they are neglected for several days. Plants in full bloom, or loaded with bloom, of course require more water; but the arrangement answers beyond my expectations for avoiding the necessity of daily supervision. I expect to give you some pictures of both outside and inside, later on. This morning there are 18 petunias in full bloom, and 2 specimens of *azalea amollis* just coming into blooom. There are about a dozen different roses, a wilderness of beauties in the way of primulas, geraniums, some pelargoniums just coming out; fuchsias, ageratums, lantanas, genestas, vincas, sweet alyssum, and a great variety of gorgeous colei, of all colors of the rainbow. The hot end, where the steam-pipes go through the wall, while it would kill some of the plants, it is just the thing for coleus to a dot. Some golden-leaved salvias, contrasting with the glittering scarlet acharanthus, set off the whole as a sort of background.

Do you say all these things cost money? Well, almost all the plants I have mentioned cost from 3 to 5 cents each. Those from cuttings, still less. The azaleas cost from 20 to 35 cents each.

Now, there is just one more thing about that greenhouse that makes it not only a thing of beauty, but a joy for ever. Every evening I have a great lot of papers and periodicals to look over—perhaps half a bushel basketful. If I do not get through with them and get them into the waste-basket, they pile up in my secretary until it will not shut up. Then Mrs. Root scolds. Perhaps I might add she never scolds so but that she is always ready to give me a kiss. In fact, it is a sort of compact between us in our married life, that, whatever comes up, we can always "make up" at any *instant.* Well, after I have read my periodicals for a couple of hours my blood becomes stagnant, and I get to feeling dull. It is that feeling that prompted me to build that greenhouse. I wanted something to get to work at evenings — something for a change or recess after this reading that I really must do to keep pace with the business of the great world.

Now I will tell you what I do when I get tired and stiff from too much reading. There is an electric light that I can hook over one of the rafters in any part of the greenhouse. With this light turned on I can mellow the soil among my plants, lift out those that are becoming pot-bound, sweep up, watch plant growth, and do any thing else. The only trouble is, if I get down to the greenhouse I get so busy (and happy) that Mrs. Root can not get me to stop when it is bedtime.

By the way, I can note changes in thrifty plants in just one hour. If I get a new plant that has been pretty badly used by mail or express, I can tell in just one hour whether it is going to grow or not. With this lean to greenhouse, my plants are constantly turning toward the sun or light, especially the bed that is back against the wall. Well, a plant that has taken hold, and is going to grow, will commence turning its leaves perceptibly toward the light in just one hour. Why, it seems as if my pets could really talk to me. This morning, when I looked in and saw the new petunias that had opened during the night in their gaudy dresses, it seemed as if each one were saying, "Mr. Root! Mr. Root! please look at me! A'n't I pretty?" And then another and another would say the same thing. None of them said, "A'n't I the prettiest of all, or more handsome than any of my neighbors?" They just said, "Don't you think *I* am pretty? Don't you admire me in my new spring dress?" And then if I do not say it out loud I say it in my heart, "Yes, you dear little darlings, you are *wonderfully* pretty; and I thank God from the bottom of my heart for having sent you to give me these thrills of joy."

Dear reader, if you have not something about your own home—flowers or trees or a little garden, or something else to make your life in a like manner happy, and full of thanksgiving to God, you are not getting all the joy and happiness that God intended you should have in this world of ours.

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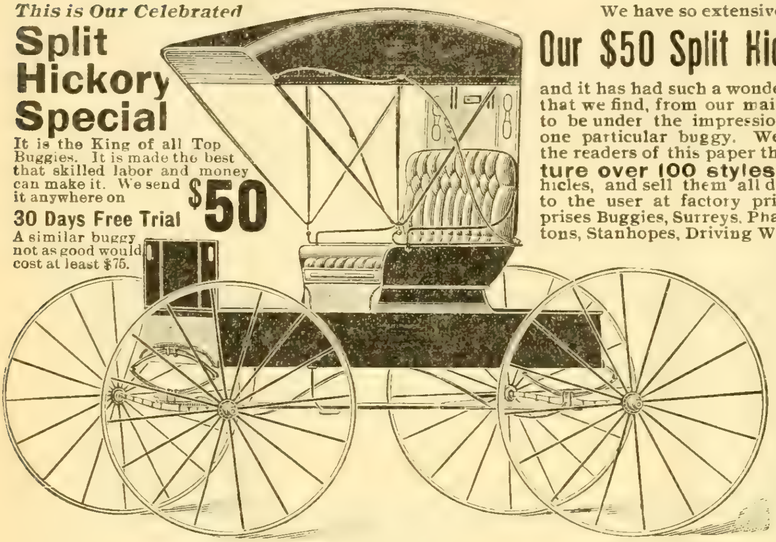

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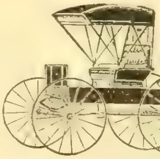

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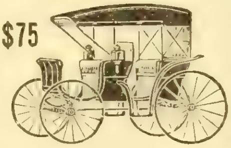

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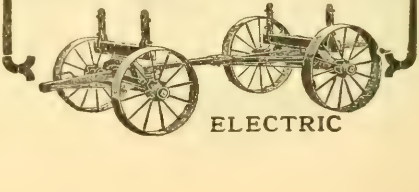

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E. J. HEMPLE.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package.

My large illustrated catalog is free, and I shall be glad to send it to you.

WALTER S. POUDER,

513-515 Massachusetts Ave., - INDIANAPOLIS, IND.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

We have files of unsolicited testimonials, but space forbids giving any here.

We employ 400 swarms in queen-rearing, the business is a specialty with us. We expect to keep 600 to 1200 queens on hand. Parkertown, O., was our postoffice, but we have changed to Bellevue which has 13 mails each way daily. (No more of our queens will be jerked from a crane.) Our new circular now ready to mail.

Queens, now Ready to go by Return Mail.

ADDRESS ALL ORDERS TO

Price of Queens Before July First.

	1	6	12
Select	$1 00	$5 00	$9 00
Tested	1 50	8 00	15 00
Select Tested	2 00	10 00	18 00
Breeders	4 00		
Straight Five-band Breeders	6 00		
Palestine Queens	2 00	10 00	18 00
Two-comb Nuclei, no queen..	2 50	14 00	25 10
Full Colony on eight frames..	6 00	30 00	
Four fr's brood, 4 fr's fdn....	5 00	25 00	

Special low price on Queens and Nuclei in 50 and 100 Lots.

Quirin-the-Queen-Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY . . . . . .

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200

Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1.50; select tested $2.50; breeders $4.00 to $7.00.
Illustrated price list free for the asking.

W. O. VICTOR,

Queen Specialist. Wharton, Tex.

Choice Queens for 1904.

We are again offering queens of the best stock obtainable. All breeding-queens are selected, first, for superior honey production, and pleased customers are constantly sending in reports like the following:

Georgiana, Fla., Jan. 29, 1904.

The untested queen I got of you last March was a dandy. I raised about all my queens from her, and they are all far ahead of the common run.

LELAND BALDWIN.

Toronto Can., April 8, 1903.

I am well pleased with your stock, my ordering again is proof of their qualities. They proved gentle and were good workers. Hoping that you can fill my order, I am yours truly, THOS. AIKINS.

Untested queens of Golden or Leather colored Italians, delivered in good order at your postoffice, 75c each; $7.50 per doz.; tested, $1.00 each; $10 per doz.

GEORGE J. VANDE VORD, Daytona, Fla.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians. Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. Laws, Beeville, Texas.

PRINTING

1000 Note-heads,	$1.50
1000 Envelopes, XXX, 6 1-2,	1.75

250 of either, $1.00, postpaid. Samples and estimates FREE

Young Brothers, Girard, Pa.

CARNIOLANS AND ITALIANS.

**Untested Queen $1.00; Six for $5.00; Twelve for $9.00.
Tested $1.50. Best Breeder $3.00. Imported $5.00.**

Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

**F. A. LOCKHART & CO.,
Lake George, - New York.**

Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years. We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness.*

Italians.

Gentle, prolific, swarm very little, hustlers to work, and a red-clover strain.

QUEENS! ATTENTION! QUEENS!

During 1904 we will raise and offer you our best queens. Untested, $1.00 each, $5.00 for 6; $9.00 for 12. Tested queens, $1.50 each; best breeders, $5.00 each. One, two, and three frame nuclei a specialty. Full colonies, and bees by the car-load. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy-Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18, Beeville, Tex.**

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1,000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

Tennessee Queens.

Daughters of select imported Italians, select long-tongue (Moore's), and select golden, bred 3¼ miles apart, and mated to select drones. No impure bees within three and but few within five miles. No disease; 31 years' experience. All mismated queens replaced free. Circular free. Safe arrival guaranteed.

John M. Davis, Spring Hill, Tenn.

	Price before July 1st.			After July 1st.		
	1	6	12	1	6	12
Untested	$ 75	4 00	7 50	$ 60	3 25	6 00
Select	1 00	5 00	9 00	75	4 25	8 00
Tested	1 50	8 00	15 00	1 25	6 50	12 00
Select tested	2 00	10 00	18 00	1 50	8 00	15 00

OUR SPECIALTIES

Cary Simplicity Hives and Supers, Root and Danz. Hive and Supers, Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season. 32-page Catalog Free

W. W. CARY & SON, Lyonsville, Mass.

Doolittle Says:

"Be very choice of this Breeder; if ever a Queen was worth $100, she is." Then we have Breeders from our strain that gave the big yields in '94, and which some of the largest bee-keepers in Cuba say can't be beat. They swarm but little and are **honey-getters.** We are breeding for **honey-gatherers** more than color. We cull our cells and queens, and **warrant** queens purely mated. Prices: Select untested, $1.00; select, $1.25 tested, $1.50; select, $2 00; breeders, $3.00, $4 00, and $5 00. Circulars free.

J. B. CASE, Port Orange, Florida.

Leather Colored Italians For Sale!

Strain took first premium Minnesota State Fair, 1901 and 1902. Ready May 1st. Eight or nine frame Langstroth hives, $5.00; ten frame, $6.00 each, f. o. b. Milaca.

**W. R. ANSELL, Mille Lacs Apiaries,
MILACA, MINN.**

Queens for Sale

BEST Golden and Leather Colored Italian Queens. Untested, 75c each; tested, $1 50 Holyland Queens, best for Southwest, $1.00 for warranted; $1 50 tested. Breeders, $3.00 to $5 00 each.

**-Slone Bee Company,-
Slone, La.**

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange five-gallon can of pure honey for its equal quantity of maple syrup
W. H. Yenney, Glassboro, N. J.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—To exchange 60 lb cans for honey, cash, or offers. No. 1 at 50 cts. per case; No. 2 at 40 cts.
G. L. Buchanan, Holliday's Cove, W. Va.

WANTED.—Refuse from the wax extractor, or slumgum. State quantity and price.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange catalog describing the best hive in existence, a double-walled hive for only 20c extra, for your name and address
T. K. Massie, Tophet, W. Va.

WANTED.—To exchange 1 new gents' Waltham watch in 20-year filled case, and 500 dahlia bulbs, for best offer in Italian bees, full colonies, or nuclei.
M. W. Royal, Gardiner, Maine.

WANTED.—To buy, somewhere in Missouri, an apiary, large or small, in 8 or 10 frame hives, with fence and plain-section-system supers Address
H. H. Conley, Jacksonville, Ark.

WANTED.—Bees in Dovetailed or Langstroth hives, full colonies in the immediate vicinity of Chicago. Write promptly, stating number of colonies offered, condition, price at which they will be delivered in Chicago, etc. The A. I. Root Co., Medina, Ohio.

Situations Wanted.

WANTED.—A position as book-keeper. Correspondence solicited. Gernal B. Slawson,
Greenville, Mich.

WANTED.—Situation by an experienced bee-man able to take charge—either salary or shares. Correspondence solicited Address
Geo. Herrick, 12,110 Parnell Ave., Chicago, Ill.

Help Wanted.

WANTED.—Assistant with some experience who is willing to bach, one to three miles out. State experience and salary.
Thos. Stanley & Son, Manzanola, Colo.

Addresses Wanted.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address Henry Alley, Wenham, Mass.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1 00 per month; $10.00 per year. Daily, except Monday.

For Sale.

For Sale.—A limited amount of ginseng sets.
C. G. Marsh, Kirkwood, Broome Co., N. Y.

For Sale.—White Leghorns, extra laying strain, cockrels and hens; eggs, $1.50. Reference, bank.
P. Hostetler, East Lynne, Mo.

For Sale.—Single-comb White Leghorn eggs from extra laying strain. 15 $1 00 30, $1 75 100. $4.00.
C. M. Woolver, Richfield Springs, N. Y.

For Sale.—Full colonies at $5 each; after May 10, $4 each. Queens, nuclei, and bees by the pound in proportion F. C. Morrow, Wallaceburg, Ark.

For Sale.—10 colonies of bees in ten-frame hives at $5 a colony, and 20 AD Jumbo complete hives, painted, at $1 25 each. Earl Baker,
2340 Ayres Ave., Toledo, Ohio.

For Sale.—57 New AE5 8 fr. Root's Dovetailed hives in flat for $55.00, or 10 for $10; also 10 new 2S 8-frame supers in flat for $3 50.
R. S. Chapin, Marion, Mich.

For Sale.—Five-gallon square tin can used for honey, at about half price of new cans. For prices etc., address Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

For Sale.—3000 L. extracting combs, in first-class condition, at 10 c each. Also 200 8-frame painted bodies at 25c.
H. & W. J. Manley, Sanilac Center, Mich.

For Sale.—Leather-colored Italian bees, with a tested queen in each colony, at $6 00 per colony. Good strong swarms. In lots of ten, $5.00 each. No disease. F. A. Gray, Redwood Falls, Minn.

For Sale.—20 colonies Italians, Danz. hives, strong in bees and honey; combs on wired foundation, $4.00 per colony, f. o. b. Dr. S. B Jackson,
Idlewood, Allegheny Co., Pa.

Clubbing Offers.—Modern Farmer, Western Fruit Grower, Vick's Family Magazine, or Poultry Gazette, and Gleanings, all for $1.00. First three 50 cents. Write for others. Modern Farmer, St Joseph, Mo.

For Sale.—Italian bees, full colonies, $4.00 three-frame nucleus, with queen, $2 50; two frame nucleus, with queen. $2 25; one frame nucleus, $1.50; tested queen, $1 25; untested, $1 00; L. frames.
Mrs. A. A. Simpson, Swarts, Pa.

For Sale.—Apiarian outfit of small house and acre of land with 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot. X Y Z, Gleanings.

For Sale.—40 colonies bees, chaff, eight-frames; 10 empty, and 8 Dovetailed with full combs; 124 Dovetailed supers, plain fence 4¼x1½. Complete outfit for comb honey for season's crop At P. M R R., 7 miles south of Charlevoix. Account of poor health.
E. Woodall, Phelps, Mich.

For Sale.—Full Colonies in Dovetailed hives, $8; 1-frame nucleus, $2 75; 2-frame nucleus, $3 50 ½ lb. bees and queen, $2; 1 lb. bees and queen, $3. All will have pure Italian long-tongued honey queens, laying, and warranted purely mated. J. B. Mason,
Mechanic Falls, Me.

For Sale.—An apiary and farm, consisting of 120 acres good grazing land, and only fifteen minutes' walk from the city of Cardenas, and on the public road; having on said place 350 hives (American system), all necessary supplies to handle these, good house on grounds, numerous fruit-trees, plenty of shade for bees, thirty odd head of cattle raised on the place, among these six fine American milch cows (Holstein stock) selling nice little amount of milk daily, good-riding saddle-horse, ox wagon with fine yoke oxen in fine condition, two good water wells, large pine-apple grove now producing, and with capacity to plant, if required, 60 000 henequen plants. Sell for cash, or on time with satisfactory guarrantee. Address
American Bee Hive, P. O. Box 44, Cardenas, Cuba.

FOR SALE.—A few colonies of bees.
A. E. JOHNSTON, Dunnell, Minn. Route 2.

FOR SALE.—Bee-keepers' supplies. Root's goods at Root's prices. Send for catalog.
G. O. EVANS, Fulton, Mich.

FOR SALE.—25 colonies bees. Single colony, $4.00; ten, $3.75; 25 for $3.50 per colony.
S. COULTHARD, Shelby, Mich.

FOR SALE.—Italian bees and queens, in 10-frame Root's Langstroth hives.
OTTO KLEINOW, 122 Military Ave., Detroit, Mich.

FOR SALE.—Second-hand steam automobile in good running order, for $250.00.
F. B., care of GLEANINGS, Peebles, O.

FOR SALE.—50 colonies Italian bees in Quinby-Hetherington hives, stores to last until June
E. D. CLARK, Randallsville, Madison Co., N. Y.

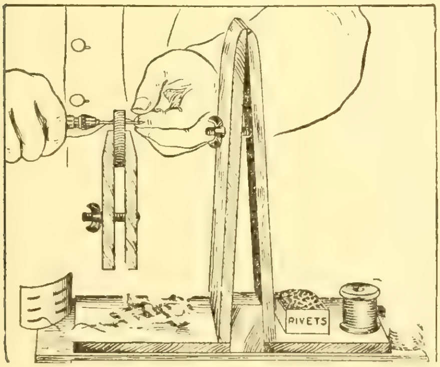
FOR SALE.—At 75 cents each, untested queens, from selected Italian mothers. Satisfaction guaranteed.
Fort Deposit, Alabama.

FOR SALE.—325 colonies of Italians and complete outfit, location and business in southwest Texas. Write for particulars.
C. A. WORTH, Floresville, Texas.

FOR SALE.—About 75 two-story 8-frame dovetailed hives nailed and painted. A few comb-honey supers, etc.; also about 50 excluders. Will sell the lot cheap.
Address R. M. SPENCER, Nordhoff, Cal.

FOR SALE.—75 colonies of bees. All the bees in a full colony queen, 1 Langstroth frame of brood in a light shipping case, $2 50; two frames brood, $2 75; three frames brood, $3 00. Five per cent off on ten colonies, ten per cent off on the whole lot.
J. N. MCCOLM, Plymouth, Wis.

FOR SALE.—A business room 20 feet wide, 60 feet long, 2 stories high, lot 30 feet wide and 165 feet long, also a business consisting of new and second hand furniture—buying, selling, and exchanging all kinds of household furniture, stoves, and musical instruments; an established trade in Root's bee-supplies, and 20 colonies of bees, located on main street of county-seat; is the only store of the kind in the county. Price $3500. Reason for selling, poor health. Address
J. GALLAGHER, Ottawa, Putnam Co., O.



MENDARIP OUTFIT.

The best yet. A hand sewing-machine and riveter. The main instrument is the tool Mendarip. This will rivet any break in your harness—even a tug; mend your rubber and leather belts, etc. With the needle you can sew rents in the carpet on the floor, stitch on half-soles, cover balls, and, in fact, it can be used in scores of ways. There is a sewing-clamp, knife, needles, thread, wax, everything NEEDFUL FOR SAVING TIME AND MAKING MONEY, for the boys can do many an odd job for the neighbors. The greatest value for the least money.

F. J. ROOT, 90 West Broadway, New York.

Do You Need Queens?

If so, you want none but the best. **Prolific Queens?**—they mean large colonies. **Good Workers?**—they mean full supers. We can fill your orders for such queens by return mail, from our choice strain of three band Italians, which are not excelled as honey-gatherers. : : :

Choice tested queens, $1.00 each; untested 75c; per dozen, $8.00. *Send for circular.*

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

---HONEY QUEENS---

Golden and Leather-colored Italians. Do you want fine queens? I have them. Tested $1.25, six for $6 50; selected tested, $1.50; extra select tested, $2.00; breeders, $3 00.

H. C. TRIESCH, Jr., DYER, ARK.

1904.

TRY J. W. TAYLOR'S record-breakers. They are three-banded leather-colored Italians. They have broken all records as honey-gatherers. I have made a specialty of queen-breeding for ten years to secure the best bees, and now I have them.

Untested, 75 cts., or $8.00 a dozen; tested, $1.25 each; select tested, $1.75; each. Breeders, the best, $4.00 each.

I have three yards, and can fill all orders by return mail. I guarantee safe arrival and satisfaction. J. E. Atchley says the finest queen he ever owned he bought from me. Try one. **J. W. TAYLOR, Ozan, Ark.**

QUEENS DIRECT From ITALY

Please send us your address on a postal card, and we will send your our price list of queens, written in English. Correspondence *not sufficiently post-stamped* will be refused. Our motto: "Whatsoever ye would that men should do to you, do ye even so to them." Write

MALAN BROTHERS, Queen-breeders,
"Apiaro," Luserna, San Giovanni, Italy.

E. E. Lawrence (Box G 28), **Doniphan, Mo.**
Breeder of Fine Italian
QUEEN BEES. Send for Price List.
Local Agents for Root's Goods.

MY GOLDEN BREEDER

gave me 400 pounds of honey last year. Her daughters are 75c each; $8 00 per dozen.

George W. Cook, - Spring Hill, Kans.

===Red-Clover and Italian Queens===

FOR SALE.

Untested queens, 75c; tested, $1.00; selected, $1.25; breeders, $2 50 to $5.00. All queens by return mail for 1904. Send for circular. **G. Routzahn, Biglerville, Pa.**

1½ STORY EIGHT-FRAME L. HIVE $1.00.

Sections, Dovetailed hives, Foundation and all supplies **at Reduced Prices.** Send for list.

W. D. SOPER, - Route 3, JACKSON, MICH.

Wanted! Lovers of Good Books to write for list of 200 titles to select from. Beautiful cloth-bound $1 books mailed for 50c These books are by the best authors, 200 to 500 pages. **The FRISBEE HONEY CO.,**
(Ref. Publishers of Gleanings.) **Box 1014, Denver, Col.**

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published ***The American Bee-Keeper*** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

More Room, More Stock

We now occupy the greatest floor space, and carry the largest stock of goods, that we ever did before. Our specialty is

Wholesale and Retail

Lewis' Goods

AT

Factory Prices.

Dovetailed hives, Wisconsin hives, Champion Chaff hives, Improved Langstroth Simplicity hives, and our new hive which we call the Acme hive. Thousands of pounds of comb foundation; millions of sections in about 30 different sizes and styles, and everything the bee-keeper needs.

Also a full line of Hoosier Incubators and Brooders.

Do not fail to find out all about

THE ACME HIVE.

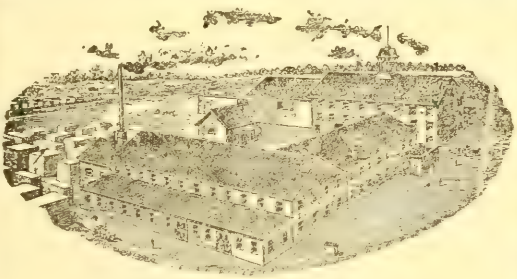
Hundreds of them already sold, this year. Catalogs and plenty of information free.
Let us estimate on your order.

C. M. Scott & Co., 1004 E Washington St **Indianapolis, Ind.**

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

I. J. Stringham, New York,

Keeps in stock a complete line of

Apiarian supplies

Colonies of Italian bees in new hive			$8.50
Three-frame nucleus colonies with Italian queen			3.75
Tested Italian queen	1.25	Untested queen	1.00
Silk-faced veil, best made	.40	Catalog	FREE

Apiaries--Glen Cove, L. I. Salesroom--105 Park Place, N. Y.

NOT IN THE TRUST.

The oldest bee-supply house in the East. Sells the BEST GOODS at former prices.

Send for Catalog.

J. H. M. COOK,

70 Cortlandt St., New York City.

Tested queens now ready by return mail.

Pacific Coast Buyers

are directed to the announcement that

SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California,

carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundation, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added This saves buyers $1.50 per 100 pounds in freight, or 36c on each hive.

Root's Bee-Supplies

AT

ROOT'S PRICES

Send for catalog.

S. D. BUELL, Union City, Mich.

BEE-KEEPERS' SUPPLIES FOR KANSAS

Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*

A. W. SWAN & CO. Centralia, Kan.

Perfection Brushes.

Twenty-five T. W. Pointers, by mail, for 25 cents in stamps. Twenty-five brushes will last, if properly taken care of, for years. Try them and you will use no other.

Dan White, New London, Ohio.

SPECIAL NOTICE

Special Notices

By Our Business Manager.

Owing to the fact that winter losses have been very heavy, there will be an unusual demand for bees; and it might be a matter of great accommodation to some of our subscribers to know where they can get more. We will give in our next issue, and possibly the one following, free mention of the names and addresses of all those who can spare bees at a reasonable price, either in nucleus or colony form. All we will give is just the address so that prospective buyers can write for further particulars.

COMB-FOUNDATION MACHINES.

Since the list of second-hand mills listed in our last we have sold one of the 14 inch and have added two 10-inch, which we offer as follows:

No. 063, 2x10, round-cell medium-brood mill of late style, nearly as good as new. Price $15.

No. 064, 2x 0, round-cell medium-brood mill, old style; has not been used much. Price $10.

BEESWAX MARKET.

One effect of the heavy winter losses in bees will be a larger supply of beeswax available for the market. We will pay, till further notice, 30 cts. cash, 32 trade, for average wax delivered here. When making shipment be sure to put your name on the package, and write, telling the kind and number of packages shipped and the gross and net weight. Include, also, a shipping receipt, and we can send along what you may want in exchange without waiting for the wax to arrive.

WHAT AUTOMOBILE TO PURCHASE.

We have been asked a good many times what automobile we would recommend. Many of the machines advertised are an experiment. E. R. Root bought one such machine because it was cheaper. He now knows that he would have saved much if he had bought an Olds, which is not an experiment, but a machine that runs. We therefore refer the inquirer to the Olds advertisement in another column. If you can't afford a new machine, get a second-hand Olds, which you can get for half price. The chances are that you can get a *better* machine than some other make new for more money.

BUSINESS OUTLOOK.

Our record for April is twenty-three carloads; and since Jan. 1, eighty-one. Owing to heavy winter losses, our dealers in Michigan and New York, whom we stocked up early, do not need later shipments, as their trade has been very light. The demand west and southwest has more than made up for this falling off, so that we are still crowded with orders. If the weather warms up soon the prospect is we shall have all we can do throughout the season.

Southwest Texas is having a veritable boom this year. We have shipped 14 cars, and have another to go within a few days where we sent only five a year ago. In spite of this great increase, a number of our customers have been greatly disappointed by delays in getting goods promptly from our San Antonio office. We shipped two cars in February and three in March. Some of these cars were delayed in transit, thus preventing our manager from shipping when he had expected and promised.

We have shipped two cars to M. R. Madary, at San Jose, Cal., whose home address is Fresno; also a large car to G. G. Wickson & Co., of San Francisco, Cal., who has been selling our goods there for a good many years.

Shipments into Iowa, Missouri, and Kansas, have been just three times as many as a year ago at the same date, and to Chicago six times; and still our dealers haven't goods enough to keep their orders filled promptly. This indicates a marvelous increase in beekeeping in the Mississippi and Missouri valleys.

DANZENBAKER
20th Century
SMOKER.

A SURE SMOKER

A SMOKER SURE FOR $1.00.
GUARANTEED TO SUIT, OR DOLLAR BACK.

The last in the field, combines the best feature of others, with special ones all its own.

It has a perforated draft-grate at the side that strengthens the fire-cup and holds a removable lining and packing in place, that keeps the fire-cup cool, adding to its durability. This lining can be replaced at a small cost.

The draft-hole is midway of the fire-cup, directly opposite the only opening in the bellows, from which the air is forced and deflected upward or downward, or both ways, as desired, to secure a dense or hot or cool volume of smoke, which is determined by the filling and lighting of the fuel.

It is superior in make-up and material.

It has no parts that can clog with soot.

It will continue to smoke from three to ten hours, in light work, until all the fuel is consumed.

It wins friends that willingly recommend it to others.

Full directions for use, and preparing special fuel for subduing bees and destroying the eggs and larvæ of the wax-moth, with each smoker.

PRICES:

$1.00 each; three for $2 70 when sent with other goods. By mail, each 25 cents extra.

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Care The A. I. Root Co., Sec. 1, Horticulture Building,
St. Louis, - Missouri.

1884 **PRICE LIST OF** 1904

Italian Queens and Bees

Untested Queens, each	$1 00
Tested Queens, each	1 50
Select Tested Queens, each	2 50
Two-frame Nucleus (no queen),	1 50
Three-frame Nucleus (no queen),	2 25
Four-frame Nucleus (no queen),	3 00
Full Colony, eight-frame, (no queen)	6 00

We are booking orders for Queens and Bees at the above prices.

We breed with scientific, intelligent methods from the best Imported and Long-tongue stock. Cheaper queens may be had elsewhere, but we make no effort to compete with the prices of the CHEAP-QUEEN men. Our stock is worth our price. You will be pleased with our stock and our prompt and careful attention to your orders. We guarantee it.

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WETUMPKA, - ALABAMA.

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Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

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Our entire stock was not destroyed

Warehouse escaped with full line of Bee-keepers' Supplies. Foundation-machinery now running full capacity, and back orders nearly filled. Send in your order and it will receive our prompt attention. :: :: :: ::

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Send at once for catalog with prices and discounts. Working wax into foundation for cash, a specialty. Ask for samples. *Beeswax always wanted, at highest prices.*

GUS DITMER, Augusta, Wisc.

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SELF CLEANING
BEE SMOKER

Bingham Smokers

Bingham Smokers are the originals, and have all the improvements, and have been the **Standard of Excellence** for 23 years. No wonder Bingham's four-inch Smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4 inch stove, per mail, $1.50; 3½ inch, $1.10; 3-inch, $1.00; 2½-inch, 90 cents; 2-inch, 65 cents.

T. F. Bingham, Farwell, Mich.

Volume XXXII. MAY 15, 1904. Number 10

GLEANINGS IN BEE CULTURE

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OUR SPECIALTY

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Beeswax wanted at highest market prices.

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fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

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Send the shipping bill with the attached coupon filled out. If you want 30 cents per pound cash for it delivered at our station, we'll send it; if you want 32 cents per pound for it in exchange for supplies, we'll fill your order. Just tell us what you want and we will send you

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Bell Branch, - Mich.

M. H. HUNT & SON,

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Name ....

Address..

C. H. W. Weber,

Headquarters for

Bee-Supplies

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Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

* * *

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

I Shall be Pleased to Book Your Order for Queens; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above.

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white, and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

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CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Philadelphia.—There is little demand for comb honey, and prices are unchanged. Commission men are not refusing any reasonable offer. Fancy, 12@13; No. 1, 10@11; buckwheat, 8@9; fancy extracted, 7½; amber, 6½. Beeswax, 31. We are producers of honey, and do not handle on commission.

May 9.

Kansas City.—The honey market is about the same as in our last, but we are getting some letters now in regard to new honey. We believe that, the sooner the old stock is disposed of, the more money it will bring. With the advent of new honey we look for lower prices on old stock. C. C. Clemons & Co.

May 9.

Chicago.—The market has an over-supply of comb honey, very little of which will pass as No. 1, which sells at 11@12, and off grades at a corresponding value. Extracted brings 6@7 for best white, and amber 5@6. Beeswax, 30. R. A. Burnett & Co.

May 9.

Toledo.—The honey market is rather quiet, as is usual at this time of the year; but as our stock is mostly cleaned up we making sales as follows: Fancy white clover in no-drip shipping-cases, 15; No. 1, 13; buckwheat, 12; white-clover extracted, in barrels, 6½; cans, 7½; amber, in barrels, 5½@6; cans, 6½@7. Beeswax, 28@30. Griggs Brothers.

May 9.

Albany.—The honey market is very dull here now, being between seasons. Quotations are nominal—white comb, 12@15; mixed, 10@12; candied honey, and honey in bad condition, no certain price. Extracted, dark, 5@5½; light, 6@7. Beeswax, 28@30.

May 11. MacDougall & Co.

Denver.—Our market is entirely cleaned up on No. 1 white comb honey. We could get $2.50@$2.75 per case for No. 1 white stock. There is no demand for candied comb honey. No. 1 white extracted honey brings 7¼@7¾; light amber, 6½@7. Beeswax, 26@30.

May 11 Colorado Honey-producers' Ass'n.

St. Louis.—There is no change in the honey market. Business is very dull. Fancy comb honey, 13@14; A No. 1, 12; No. 1, 10@11; No. 2, 9; No 3, 7@8; broken honey, 5@7. Extracted, 5@5½ in cans, 4@4½ in barrels. R. Hartmann & Co.

May 9.

Toronto.—No change in price. Extracted, 6½@8; comb, $1.50@$1.75 per dozen. Market is slow.

E. Grainger & Co.

May 10.

For Sale.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.

G. W. Wilson, R. R. No. 1, Viola, Wis.

For Sale.—Thirty barrels choice extracted white-clover honey. Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. Emil J. Baxter,

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For Sale.—Fancy basswood and white-clover honey; 60-lb. cans, 8c; 2 cans or more, 7½c; bbls., 7¼c.

E. R. Pahl & Co., 294 Broadway, Milwaukee, Wis.

Wanted.—Beeswax; highest market price paid. Write for price list.

Bach, Becker & Co., Chicago, Ill.

Wanted—Comb and extracted honey. State price, kind, and quantity. R. A. Burnett & Co.,

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Wanted.—*Extra* fancy comb honey, about 100 lbs. each in Danz. and 4¼x4¼ sections, the latter in two-beeway and four-beeway sections.

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Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

Hildreth & Segelken,

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Wanted—Beeswax. We are paying 30c cash or 32 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York City, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.

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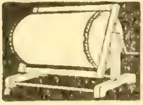

kills all lice and mites. No injury to birds or feathers. Handles any fowl, smallest chick to largest gobbler. Made in three sizes. Pays for itself first season. Also *Lightning Lice Killing Powder, Poultry Bits, Lice Murder, etc.* We secure special low express rates. Catalog mailed free. Write for it.
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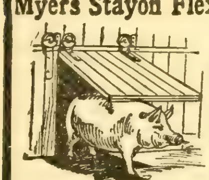

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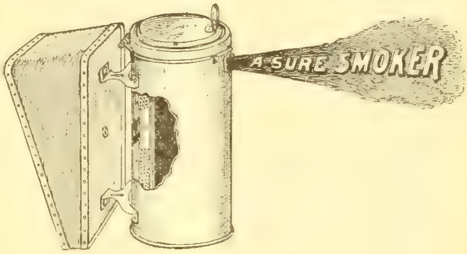

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The last in the field, combines the best feature of others, with special ones all its own.

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The draft-hole is midway of the fire-cup, directly opposite the only opening in the bellows, from which the air is forced and deflected upward or downward, or both ways, as desired, to secure a dense or hot or cool volume of smoke, which is determined by the filling and lighting of the fuel.

It is superior in make-up and material.

It has no parts that can clog with soot.

It will continue to smoke from three to ten hours, in light work, until all the fuel is consumed.

It wins friends that willingly recommend it to others.

Full directions for use, and preparing special fuel for subduing bees and destroying the eggs and larvæ of the wax-moth, with each smoker.

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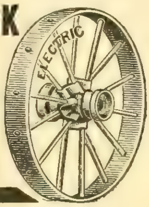

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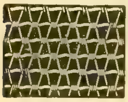

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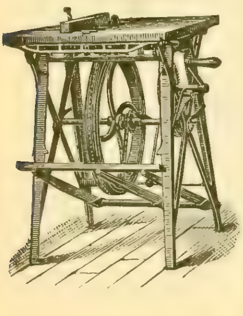

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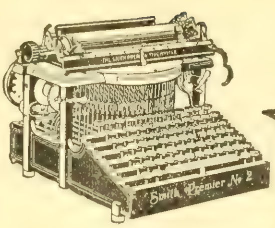

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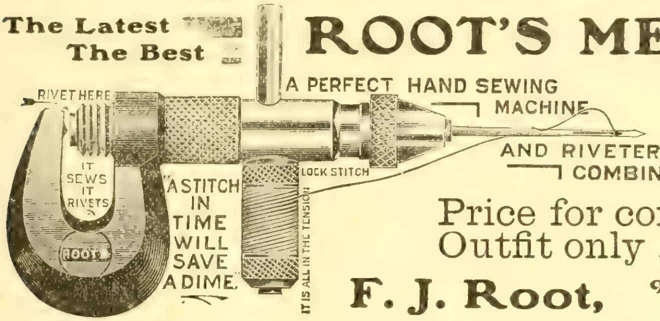
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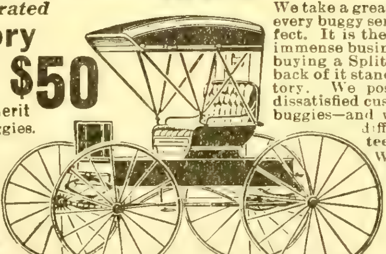

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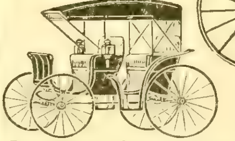

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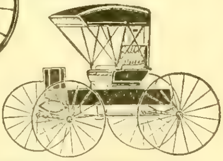

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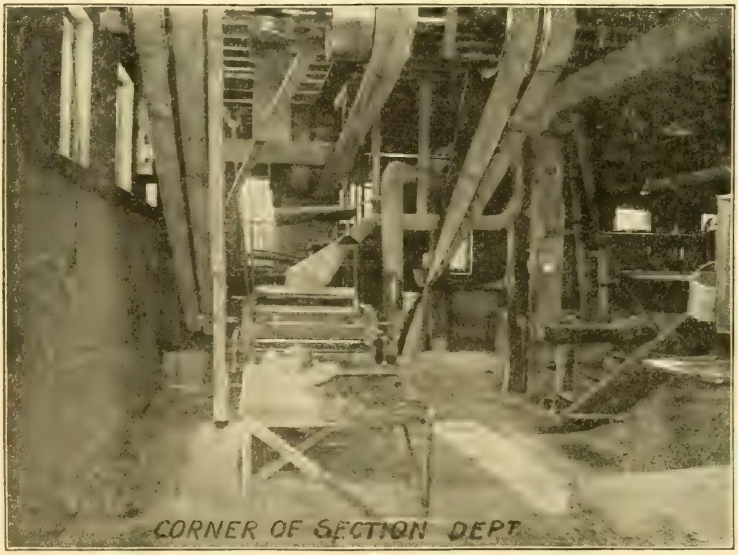

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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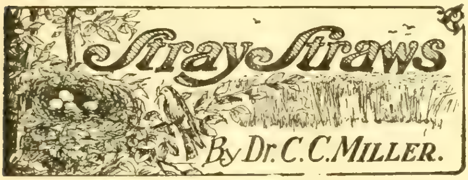


Stray Straws

By Dr. C. C. Miller.

So A. I. Root couldn't get along without posies. Good! I feel sorry for those who have no flowers, and still sorrier for those who don't care whether they have them or not.

Cutting honey with wire seems to have been carried on in Canada too. John Fixter did it in a more wholesale way than any thing yet reported—had a big wooden tank made so that it could be taken down, leaving a solid block of honey weighing a ton to be wired into little blocks. Good for Canada!

Fashion seems to rule quite a bit in bee-keeping as well as in women's shirtwaists. In Europe it is a rather common thing to have horizontal or long-idea hives. Seems to be the fashion there. In this country Poppleton stands nearly alone. But when a man like Poppleton does a thing, it's the same as if a whole lot were at it.

Golden-leaved salvias were praised highly by A. I. Root. I got some and set out in a bed. They were not as good as the common kind—merely looked a little faded. Though they weren't true to name, I tried it again with same result last year. Very likely if I'd kept them in the house they would have been as fine as Bro. Root's.

Two wings are shown on p. 438, and not a word said about the lower one. Mr. Beginner, those two wings belong together on the same side of a bee, and you'll see a beautiful relation between them if you'll note that set of hooks on the upper margin of the lower wing, which takes hold of the fold in the lower margin of the upper wing.

E. F. Phillips, p. 439, advises the use of drone foundation. With apologies for the presumption, I demur. Don't the bees build drone-cells large enough without foundation, except the transition-cells? and if a few drones are raised in transition-cells, will they be in the race at all with their burly brothers reared in the larger cells? [There is a possibility that they might; but I think Mr. Phillips had more in mind queen-breeders putting in drone foundation to make sure that there would be a sufficient number of drones of choice stock and of the right size.—Ed.]

You say, Mr. Editor, that, of course, a section broader than tall, laid on its side, will have one long side not so well filled out as the other long side, and Mr. Hains says no one but an expert would tell the difference. Both probably true. With a bottom starter in a good flow, even an expert could not probably tell which was which without some study. [Yes, a bottom starter would be a great help; but even then one side of the tall section would be a little plumper, or a little thicker, perhaps—not enough, however, to hurt its appearance in the eyes of the consumer.—Ed.]

Sometimes there is a tendency to sneer at the work of scientific men who know little or nothing about practical bee-keeping, forgetting that sound theory is at the foundation of successful practice. I take off my hat to men like Messrs. Phillips and Casteel, who have the patience to measure the wings of *a thousand bees*, giving us practical bee-keepers the results. [Mr. Phillips is all right. I know him personally—enough so that I can see that he has in him the instinct of a true scientist. He requires to be convinced—not by one case, but by many. The trouble with us ordinary mortals is that we jump at a conclusion because one or two circumstances may point our way.—Ed.]

"Nuclei" is a word that is used incorrectly by bee-keepers perhaps more than any other term in bee-keeping. I've been puzzling for some time over "nuclei-shipping boxes," p. 429, and I can't be positive whether it's right or not. Get Stenog to set his gray matter to work on it, and see what he decides. [Say, doctor, I do not see how there can be any question if we reason from analogy. Horse-carts, dog-kennels, man-heads, pig-stys, etc., are familiar examples. Undoubtedly the phrase should be *nucleus* rather than *nuclei* as the proper adjective to be used before "shipping-boxes," as each nucleus is shipped by itself. It was simply an oversight.—Ed.]

However bad the matter of adulteration in this country, there's a certain grim comfort in the thought that adulteration of honey is worse in Europe than here. [You are sure of that, are you, doctor? If you were to go over the country as I have, and visit the various cities, and see the packages of extracted honey that are put up and labeled "pure," I think you would conclude that conditions *could* be no worse than they are in the United States. The glucose business here is flourishing, and the backers of it are seeking all sorts of outlets, and one of the best outlets is under the guise of honey. I am sorry to say it, but I have about come to believe that honey put up in glass by a packing-house that puts up all kinds of syrups besides, including glucose mixtures—is, generally speaking, not pure. The time will come when the National Bee-keepers' Association, or some organization backed by bee-keepers, will have to put out its own honey properly branded.—Ed.]

I've just read over for the second time, Mr. Editor, your philosophy as to temperature and ventilation of bee-cellars, p. 432, and I think you've got it down pretty fine. You can't give too much fresh air unless it becomes wind, and you can't make the temperature too uniform. If a severe cold spell comes, and it's a question whether to continue ventilation and let the bees get a little too cold, or to keep up the temperature and squeeze down a little on ventilation, it's better to let temperature have the right of way. In reality you are thus taking care of both at the same time; for the warmer you make the cellar and the colder it is outside, the greater the difference in the weight of air in and out, so the greater the ventilation. I think none of this conflicts with Bro. Doolittle's superb success. He succeeds grandly in holding temperature at that point where the least amount of oxygen is consumed, and at the same time the bees are furnished all the oxygen they need. [All the oxygen they need? Even our friend Doolittle has reported having a good many dead bees on the cellar bottom. If his bees could have had more oxygen, and still have the uniform temperature, which I suppose is not possible, there would be fewer dead ones on the floor, and more vigorous colonies. I do not suppose Bro. Doolittle could give more oxygen without putting in a very expensive apparatus for cooling and warming the cellar. He would have to have, probably, hot-water pipes to warm up when the air from outdoors was too cool, and ammonia-pipes to cool off when the air from outdoors was too warm. I expect to try the experiment next year, with a cistern or cellar so far under ground that the frost can not come anywhere near the walls; then shut off all ventilation, or except such as may percolate through some porous material.—Ed.]

The advice to go no faster than the bees will pay the way is questioned as to its wisdom, by me, p. 428; and in a footnote, Mr. Editor, you take it as in reply to you. I didn't know that you had been a special advocate of that doctrine, but others have. Your position on page 382 I do not feel at all inclined to criticise unless it be the one point where you speak of the increased expense of "sugar to feed," as if feeding sugar were a regular part of the program. I am coming more and more to believe the Germans are right who hold that sugar is never to be fed except as a matter of necessity; that strong brood can not be reared on sugar as well as on honey; that every pound of sugar fed is just so much interference with the honey market; in short, that the perfect bee-keeper will make it his aim never to feed an ounce of sugar.

When talking of increasing to 500 or 1000, you italicize the advice of "*making the bees pay their way.*" That is eminently wise, for in that case a man is generally supposed to have most of his capital in the bee business, and he should keep on safe footing. Perhaps the strongest reason for such a man to go only as the business warrants further outlay lies in the point you make that a man should feel his way until he knows that *he* has the ability to run the business on a larger scale.

It would be hard to emphasize too strongly the advice to go carefully without taking risks and running in debt. That's sound advice, whether it relates to the bee business or any other business.

But all this has little or nothing to do with the advice to every beginner to put it down as a fixed law that he will under no circumstances make any outlay except as the bees furnish him the means. There are thousands of beginners who don't need any such advice. If you care for specific illustrations, say the word and I'll give you instances where a man would be foolish to follow such advice. [Yes, I will admit that there are times and circumstances when a beginner would do well to borrow money in order that he might make the *right kind* of start. There are other times too when a professional would do well, even if he has to borrow money to do it, to buy up a bee-yard in his vicinity — that is, one that might cut down his honey crop. A good bee-keeper has many and many a time paid off debts like this in a single season, and had a comfortable surplus besides. But if one were to multiply illustrations of this kind, without emphasizing the other side—that of conservatism—there might be a great danger of bee-keepers of the beginner class, not knowing the hazards and the uncertainties of the business, plunging in too deeply, and then turn around and curse ye editor for their reverses. When one thoroughly understands that there are liable to be heavy winter losses, such as we had last year; that there are liable to be failures of honey yields, and, if not complete failures, very small crops, he may then borrow money to increase the working capital, because he knows what he may have to run up against. Some years ago a friend of a speculative turn of mind saw the supers of fine honey I was taking off from one of our hives. He was interested at once.

"How many dollars will that hive net you?"

I figured up the comb honey at 10 cents, or in round numbers $2.50 per super; and four supers (for it was a fine colony, and the season good) would make an even $10.00. My friend's eyes began to sparkle.

"How much is a colony of bees like that worth?"

"Five dollars," I answered.

"What! Clear 100 per cent off from the investment?"

"We did it with this colony."

"Say," he said, growing more interested, "what will you charge me for a hundred colonies?"

Then I had to go on and explain some of the uncertainties of the business; and when I had finished my story he thought he could make more money, or as much, in his other business. Over against this I could have cited to my friend many a case where an expert bee keeper went into debt and bought up a yard that had not paid its owner a cent, took that same yard in the old location, and made it return a big per cent on his investment. Yes, I have in mind several bee-keepers, and I could give the names right here, who have done this; but they would not thank me for giving publicity to their localities.—Ed.]

Pickings from Our Neighbors' Fields
By
"Stenog."

Mr. Danzenbaker's new theory in regard to requeening is well set forth in the following, which I clip from one of our Medina papers:

> Francis Danzenbaker, inventor and apiarian, of Miami, Fla., and Mrs Inez Roden were married at her home in Medina, Thursday evening, Apr. 28. Mr. Danzenbaker is now at the St. Louis exposition in charge of The Root Co.'s exhibit there. Mr. and Mrs. Danzenbaker will eventually make their home in Florida.

In a private letter Mr. W. Z. Hutchinson says to me, "I must write and thank you personally for your very kind words in Gleanings for April 1. I sometimes wonder if I am deserving of all the kind things that are said of me by my friends. I hope I am, and I shall certainly strive to deserve them." I don't see why Mr. H. should doubt what seems self-evident to the rest of us.

* * *

I sometimes wonder why people with the title of "Professor" before their names say some things they do. Prof. H. D. Gould is contributing some very interesting articles to the Cleveland *Press* on insect life and its development. He starts the series with the following paragraph, which by no means gives me much zest to read what follows:

> Bugs and bees, flies and fleas, and countless other denizens of the insect world, conspire to make life miserable to long suffering humanity, and it is the purpose of a short series of articles to point out the cause and cure for these petty annoyances, and, incidentally, to derive from these lowly sources the leading facts illustrative of their habits of life and the marvelous provisions of Providence for their existence.

It is difficult to understand why a man who knows a bee from a bedbug or flea should speak of bees being obnoxious to the human race for the same reason that flies, etc., are. Bees have no natural liking for the human race, and certainly never infest the human form except in rare cases for what they consider self-defense. I have yet to find a man who ever considered a bee on the clover on his lawn as any more of a "petty annoyance" than he would a lot of hummingbirds in his honeysuckles. Bees have been cultivated from time immemorial, and always will be; and their addition to the sum total of human food, and that one of the best, is not only considerable but enormous. But, great as is the value of the bee on account of its honey, Prof. Gould has so far overlooked its still greater importance in the fertilization of fruit-blossoms, which, it is easy to believe, is the chief mission of the bee in its relation to nature at large. In reply to why these things exist, Prof. Gould says:

> Right here rises the question, "Why do they exist?" and then comes the answer, "To preserve the balance between the constructive forces and the destructive forces of nature." If there were no insects, plant life would soon overrun the earth. Insects keep down the plants. But, on account of the extreme productiveness of insects, they would soon overrun the earth, and neither plant nor man nor beast could exist were it not for other insects that prey upon the plant-eaters, and for parasites that prey upon both.

I give that theory for what it is worth; but, so far as bees are concerned, it is not likely that they destroy an ounce of otherwise valuable vegetable matter in the United States in the course of a year, but add untold quantities of peaches, apples, plums, pears, etc., to the wealth of the nation and of the world. Prof. Gould speaks a good word for the common fly, calling it a "scavenger." He says disease is far less rampant in those years when flies are plentiful. I doubt whether statistics will prove that; but certain it is that they are now justly considered as the greatest disseminators of disease we have, with the possible exception of mosquitoes. They absorb many poisonous substances, but only to scatter them to other places. And then to have the dainty bee, a model of immaculate neatness, classed with flies as a petty annoyance! I say this, remembering that in this same issue is an account of a child being stung to death by bees. But this child might have been killed by a horse by striking it with a switch as it did the bees, or gored by a cow or torn by a dog or butted by a sheep.

A little aside from the subject of bees, but yet of interest, is something from a Cleveland professor, Dr. C. H. Howe, President of Case School. He was asked in regard to the probability of our having a very warm summer. He replies, "A meterologist ought to know more about such things than an astronomer, for astronomical happenings have no bearing on terrestrial temperature, outside of popular fallacy." The last part of that sentence, it will be observed, leaves no room for the makers of weather-almanacs to stand on. Better still, it's true.

Editorial
By E. R. Root

The next convention of the National Bee-keepers' Association will be held in St. Louis, Sept. 27, 28, 29. It is proposed to make two days of this convention international, and one national. The President, J. U. Harris, says he would like to get suggestions from all sources for the outline of a program.

WHITE CLOVER VERY ABUNDANT THIS SPRING.

I think I never saw a greater profusion of young white-clover plants than this spring. The heavy snows of the past winter, and the continual rains and misty weather of the spring, have given white clover a boost forward, the like of which I have never seen. A great pity it is that in these very regions, where white clover promises so much, the mortality of the bees has been so heavy. Some years we have plenty of bees but little clover. This year I fear the condition will be reversed. In either case there will be a scarcity of white-clover honey, the staple of the East.

TWO WESTERN BEE-JOURNALS CONSOLIDATED.

H. C. Morehouse, editor of the *Rocky Mountain Bee Journal*, has sold out the plant, subscription-list, and good will of the paper to Mr. P. F. Adelsbach, of the *Pacific State Bee Journal*, and manager of the Central California Honey-producers' Association. The two journals will be merged, and published under a more comprehensive name, to take in the interests of apiculture in that broad region extending from the Rockies to the Pacific Ocean.

Mr. Morehouse's main business of honey-producing has grown to such an extent that he had no further time to devote to other interests. He starts the present season with 700 colonies, and expects to increase them to 1000. He showed excellent ability as a paragraph writer, and his journal from the very start had none of the appearance of some of the new papers struggling for a mere existence. We wish the new consolidation every success, and in the mean time hope that Mr. Morehouse will not drop out of the field of writing entirely.

GETTING AFTER THE ADULTERATORS.

The food inspector for Los Angeles, Cal., finds many bogus mixtures. The following clipping, from the Los Angeles *Daily Times*, explains itself:

> Thirty-five times Inspector Drummond, of the health department, bought mixtures of glucose and sugar when he essayed to buy extracted honey. While honey is cheap in this most favored of all honey-producing sections of the country, the manufacturers of the adulterated mixture, in which a small quantity of honey was used, must have been able to put it on the market at a much lower price or it would not so commonly be found on the shelves of the retail grocers.
>
> M. W. Worster, salesman for the Southern Syrup Co., was yesterday convicted before Justice Austin of having sold one of the samples taken by the inspector, and was fined $25.
>
> While Mr. Drummond has bought adulterated samples from other manufacturers, he says that most of the dealers are selling the article put on the market by the concern which Worster represents. It is the intention of the health department to keep after those who sell the sham article until it is driven out of the market. Other complaints are expected to follow.

Inspector Drummond, of the Health Department, is to be congratulated for the active stand he is taking in the interests of pure food and health. This will mean much to the interests of bee-keepers in that vicinity. Let the good work go on.

POPPLETON NUCLEUS PLAN OF CURING BEE-PARALYSIS.

Some time ago we published the Poppleton plan, as taken from the *American Bee-keeper*, of curing bee-paralysis by spraying the combs and bees thoroughly with powdered sulphur, the combs containing brood being first given to healthy stocks. As the disease does not seem to be transmitted through the brood or combs unless they contain dead bees, no trouble results from such transfer; on the contrary, it would be killed if sprinkled with sulphur in the sick colony. Proposing to incorporate this cure in the next edition of the A B C of Bee Culture, I asked Mr. Poppleton if he had any thing further to add since his published utterances. In response he writes:

> While bee-paralysis can be certainly cured by the proper use of sulphur, yet for several reasons I prefer the nucleus plan. I have had so much trouble with the disease continuing in certain strains of bees that I am satisfied the best way in the long run is to destroy entirely all affected colonies, queens, and all the bees. As this can be done as easily and cheaply as the colonies can be cured by treatment, I very strongly urge that way of controlling the disease. I have been experimenting with it for several years, and have practiced it with the few sick colonies I have had during the past two or three years. I simply make as many nuclei as will be needed, usually one for each sick col-

ony; and as soon as the nucleus has a young laying queen I transfer the brood-combs, one or two with the oldest capped brood of the sick colonies at a time, to these nuclei repeating this operation every few days as rapidly as the nuclei become strong enough to care for them. As soon as all the brood has been transferred from the hives of sick bees I destroy the queen, bees, and all, with sulphur fumes, fumigating the hives at the same time. Sick bees often crawl into empty cells to die; so when transferring combs, one needs to examine them very thoroughly, to be sure not to transfer any old bees from one hive to the other.

The advantage of this method is that we get entirely rid of all diseased bees and *queens* that might transmit the disease to their descendants in following years, and in their places we have colonies fully as strong, usually stronger, both in bees and combs, with young healthy queens. This is all done without any amount of expense or extra labor, or the loss by destruction of any thing of value.

Of course, there may be times or instances when it may be best to cure the diseased colonies instead of using the above plan. Nuclei can not be formed and built up at all times of year, or there may be other reasons; but as a rule this method has been more satisfactory than to cure and keep the old colony

Stuart, Fla. O. O. POPPLETON.

I would add that the next edition of the A B C book will contain both of the Poppleton cures, as there may be circumstances where the nucleus method could not be conveniently followed. I might suggest that a *combination* of the two methods might often be applied very successfully, and thus eliminate largely the objection to the sulphur cure. My combination would be this: Sulphur the colony as recommended for the sulphur plan, and then, when the colony is convalescing, kill its queen and put in another from an undoubtedly healthy strain.

THE OHIO FOUL-BROOD LAW.

I TAKE pleasure in giving the text of the Ohio law passed by our general assembly:

OHIO FOUL-BROOD LAW.

Be it enacted by the General Assembly of the State of Ohio:

SEC. 1.—That whenever a petition is presented to the board of county commissioners of any county in the State of Ohio, signed by three or more persons, all of whom are residents of said county, and possessors of an apiary, or place where bees are kept, stating that certain apiaries within said county are infected with the disease known as foul brood, or any other disease which is injurious to bees or their larvæ, praying that an inspector be appointed by said board of county commissioners, said board of county commissioners shall, within five days after the presentation of said petition, appoint a person as bee inspector who is resident of said county, who shall be a skilled bee-keeper, having thorough knowledge of foul brood and other diseases injurious to bees and their larvæ and the treatment of the same.

SEC. 2.—The person so appointed shall, within five days after his appointment, file with the said board his written acceptance of the office; or in default thereof, or in case of vacancy, the board shall in the same manner make new appointments until the said office is filled. The inspector shall hold office for two years, and until his successor is appointed and qualified, except when, upon petition of ten persons (each of whom is a resident of said county, and possessor of an apiary), to the board of county commissioners of said county, they may remove said inspector for cause, after a hearing of petitioners.

SEC. 3.—Any bee keeper or other person who shall have cause to believe that any apiary in his county is affected with foul brood or other disease, either in his own apiary or elsewhere, shall make affidavit, stating that, on information or belief, he believes that certain apiaries, describing the location, naming the owner or keeper, is affected with foul brood or other disease, and his ground for such belief. On receiving said affidavit from any source, of the existence in any apiary in his county, of the disease known as foul brood, or any other infectious or contagious disease of bees, the county inspector of bees shall forthwith inspect each colony of bees, and all hives, implements, and apparatus, honey and supplies, on hand or used in connection with such apiary, and distinctly designate each colony or apiary which is infected, and notify the owner, or person in charge of said bees thereof, in writing or otherwise; and the owners of said bees, or the persons in charge thereof practically and in good faith to apply, and thereafter fully and effectually carry out to and upon such diseased colonies, such treatment as may have been prescribed by the said inspector for such cases; also thoroughly disinfect, to the satisfaction of the inspector, all hives, bee-houses, combs, honey, and apparatus that have been used in connection with any such diseased colonies; or, at his election, the said owner or person in charge of such bees may, within the same time, utterly and completely destroy such bees, hives, houses, comb houses, honey, and apparatus, by first killing the bees (by the use of sulphur fumes when the bees are in the hives for the night), by fire, or burying the same in the ground with a covering of not less than two feet of earth.

SEC. 4.—The county inspector of bees shall have the right to enter the premises of any bee-keeper where the bees are kept, and inspect such bees; and any person resisting or refusing to allow said inspection by said bee-inspector, shall be guilty of a misdemeanor, and may be then and there arrested by said bee-inspector or person deputized by him, and brought before a justice of the peace, and upon conviction shall be fined not less than ten dollars nor more than twenty-five dollars.

SEC. 5.—After inspecting, working with, or handling infected hives or fixtures, or handling diseased bees, the inspector or other person shall, before leaving the premises, or proceeding to any other apiary, thoroughly disinfect his own person and clothing, and shall see that any assistant or assistants with him have also thoroughly disinfected their clothing and person.

SEC. 6.—The inspector shall have full power in his discretion to order any owner or possessor of bees dwelling in box hives, in apiaries where the disease exists (being mere boxes without frames) to transfer such bees to movable-frame hives within a specified time; and in default of such transfer the same shall become unlawful, and the inspector may destroy, or order for destruction, such box hives, and the bees dwelling therein, as a public nuisance.

SEC. 7.—Should any owner of or keeper of, or other person having diseased bees or their larvæ, or of any affected hives or combs, appliances, or utensils for bee-keeping, sell or barter, or give away the same, or allow the same or any part thereof to be moved, such person shall be guilty of a misdemeanor, and upon conviction such person shall be fined not less than ten dollars nor more than twenty-five dollars.

SEC. 8.—Should any person, whose bees have been destroyed or treated for foul brood, sell, or offer for sale, any bees, hives, or appurtenances of any kind, after such destruction or treatment, and before being authorized by the inspector to do so; or should he expose, in his bee-yard or elsewhere, any infected comb honey, or other infected thing, or conceal the fact that such disease exists among his bees, such person shall be guilty of a misdemeanor; and, upon conviction, such person shall be fined not less than ten dollars nor more than twenty-five dollars.

SEC. 9.—If any owner or keeper of bees knows of, or, after being notified by the county bee-inspector, that foul brood or other infectious or contagious disease exists in any of the hives in the apiaries owned by or in charge of said persons, and shall fail to comply within ten days from receiving said knowledge, and the date of receiving instructions from the county inspector to cure or destroy the bees or hives or their appliances, such person shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than ten dollars nor more than twenty-five dollars.

SEC. 10.—When the owner or possessor of bees shall disobey the directions of said bee-inspector in curing or destroying any diseased bees, honey, hives, or appliances, they shall become unlawful and a public nuisance, and the said bee inspector shall at once destroy said bees, honey, hives, or appliances, and may deputize such additional persons as he may find necessary to effect said destruction.

SEC. 11.—The county inspector shall make a monthly report in writing, under oath, to the board of county commissioners, in which report he shall state the days and number of hours in the preceding month spent by him in the actual discharge of his duties, and shall, in said report, state the name of the owner or keeper, and the location of the apiary upon which such time was spent in curing or destroying said bees, together with an itemized account showing the dates and amounts, for what incurred, money spent for any discharge of his duties, and to whom the same was paid, and for what services and considerations such indebtedness was incurred, and accompany said report with the affidavits given him under and in pursuance of Section 3 of this act, and make full and complete report of all he did, and results of his treatment of any apiary.

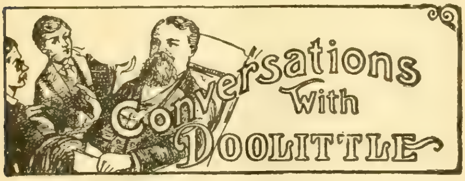
Sec. 12.—After the county inspector of bees in any county shall make report, as provided in the preceding section, said county commissioner shall allow and pay to said county inspector of bees two dollars for a full day, and one dollar for each half day, necessarily and actually employed in the discharge of his duties under this act, together with his necessary and actual expenses while so employed, to be audited, allowed, and paid by the county officers.

Sec. 13.—This act shall take effect and be in force from and after its passage.

It will be seen that this is based on the county plan, and is very similar to the law that has given such good results in Colorado and California. While, perhaps, a law providing for an efficient general State inspector, to have jurisdiction over the whole State, would be better, it would have been simply impossible to have gotten such a measure through our legislature. If our present law is not sufficienly effective it may be used as a stepping-stone to something better later on. But I am inclined to think it will do very well for the time being, and possibly for all time. I would suggest to bee-keepers of other States that they secure first a county law, as it would probably be easy to get such a measure through any legislature.

WEDDING BELLS.

Elsewhere we have mentioned the marriage of Mr. Francis Danzenbaker, the bee-hive inventor, to Mrs. Wm. Roden, of this place. We also have the pleasure of announcing the marriage of the veteran queen-breeder, Mr. Henry Alley, to Mrs. Margaret McLean Ball, on the 5th. Gleanings certainly wishes both couples great joy and many years of happiness to come. Both of the grooms are well known throughout the whole bee-keeping world. Mrs. Danzenbaker had charge of our department where we make fences for plain sections, including those for the Danzenbaker hive, so that she was not wholly out of touch with bees or with the hive invented by her husband.



SECURING COMBS OF HONEY FOR NEXT SEASON.

"Doolittle, I came over to ask you a question."

"All right, Snyder. Fire it out."

"For purposes of feeding bees, is not a comb full of honey as good as any thing?"

"That is my candid opinion."

"But would it be for stimulating the bees to brood-rearing in the spring?"

"I think so, if rightly managed."

"What would be right management?"

"There are two ways of right management with such combs. In early spring they should be placed close up to the cluster of bees; or, if the colony is strong, just over behind a division-board, so that the bees in carrying the honey would have to go around this board. Any way that compels the bees to move honey from one place to another has a tendency to stimulate brood-rearing. But, of course, there is nothing that stimulates brood-rearing so much as the moving of nectar or honey from the flowers of the field into the hive where it is stored in the cells immediately surrounding the brood. And the carrying of honey from a comb around a division-board, or of the same from a feeder, comes next; and the taking it from a comb just outside the cluster, last. But if any colony is weak, or the weather is still cold in early spring, it would not answer to put the comb beyond a division-board, on account of robbing with the first, and because it would do no good with the latter. Judgment must be used in all of these things."

"What of the second way?"

"That is to be used a little later in the season, after the colonies become a little stronger and the weather more settled and warm. When such a state of affairs comes about, and there is no honey coming in from the fields, then partially break the sealing to the honey by passing a knife flatwise over the face to the comb, when it is to be set right down in the center of the brood-nest."

"Why do you do this?"

"On the same principle as before."

"How is that?"

"Before, we were making the bees carry the honey from the fields, the comb outside the division-board, or from the outside of the cluster, to the cells immediately surrounding the brood; and this carrying was the means of their thinking they were in a properous condition, just the same as a man thinks he is prospering when he is moving treasure into his home and about his fireside. And placing this frame of honey with broken cappings in the center of the brood-nest, right between combs of brood, not only gives the bees the idea that they have struck a bonanza, but sets them to removing this honey, all warmed up and made thin similar to the nectar from the fields, removing the same from the inside of the cluster to the cells around the brood on the outside of the same; and in this stir thus caused, the queen is incited to greater activity, and finds plenty of unoccupied cells right in the warmest part of the hive. Of all the ways of coaxing an advance in brood-rearing, I know of nothing that is so much of a success as this, except the bees bringing in nectar from the opening flowers."

"This looks quite reasonable, and such a course would require much less work with less expense than would the making of sugar syrup, feeders, and the nightly feeding of bees for weeks at a time. But how can I secure these combs of honey? It would take lots of them if a man kept many colonies."

"Yes, a great many combs could be used advantageously in this way, and ofttimes such are almost a necessity to supply bees with winter stores, where short, and also to keep colonies from starving in the spring. I intend to keep as many as two full combs of honey to each colony I expect to have in the fall, so that I may be fully supplied for any emergency that may come along; and if these combs of honey are not needed for feeding, then they can be used for this stimulative feeding; and should the flowers yield nectar so they are not needed for this purpose, then they can be used to advantage in the swarming season."

"Yes, but that is not answering my question of how I can obtain them."

"In GLEANINGS for Feb. 1 I told something of how I made shook swarms, and how I kept tiering the brood as the bees were shaken off it on the weaker colonies in the apiary, till I finally had combs massed on some colonies till some had four and five stories."

"Yes, I remember reading that conversation."

"Well, now, instead of carrying that out to such an extent as there given, which was on the plan of securing all of the comb honey possible, and using only bees enough to protect the broodless combs from the ravages of the wax-moth, stop the tiering of brood with only two stories of the same over a rather weak colony, using a queen-excluder over the lower hive having the queen in it, and, when fall comes, unless the season has been very poor you will have twenty combs filled solid with honey. If the season proves to be a good one, then I keep adding hives of combs as they are filled, till the season for honey is over; and in this way I often get 40 L. frames nearly solid full of honey; for you will realize that those hives of brood give monstrous colonies in bees at the end of 21 days from the time the brood was given."

"I see now, and the way is very simple, also."

"Yes, and there is no loss with it either; for if we get more of these combs of honey than we need, it is the easiest matter in the world to extract from those combs when we have all the honey not needed by the bees in a perfectly salable form, and just as good, to all intents and purposes, as if we had worked those colonies for extracted honey."

"Truly. I wonder I did not think of it when I read that February first conversation. But you said something about using these full combs in swarming time. What about that?"

"As much of this honey as is not needed for feeding, either in fall, winter, or spring, and we have not considered it best to extract, it can be used to advantage by giving the combs to our new swarms, whether they are from natural swarming or made on the 'shook' plan."

"How many frames of this honey would you give to a swarm?"

"If the season previous has been a poor one, and the combs are only half to two-thirds full of honey, then you may secure the best results by hiving your swarms on the full number of frames your hive contains, and putting the sections on at the time of hiving. But if the combs are completely filled from top to bottom, and from side to side, it will be better to use only half the number your hive holds when hiving swarms, filling out the rest of the hive with wired frames full of foundation."

"Why do you made the difference between full frames of honey and those partly full?"

"If a swarm is given a full hive of full combs of honey the bees may be thrown into an abnormal state and not carry much of the honey to the sections, as they generally will do with nearly the whole, where only a few are used. If the bees do not immediately start to carrying the honey from these full combs, the result will be little or no honey in the sections, and little brood and few bees in the hive in the fall—they apparently concluding that they are *all* full of honey now, ready for winter, and so loaf the rest of the season away. But where part of the space is empty, enough to start them laboring, then the queen gets a good start, and pushes her egg-laying till nearly all of the honey given is put in the sections in salable shape."

"I see now. But I'll be going. Instead of the one question I thought to ask you when I came, they have kept coming and coming. I hope I have not wearied you."

"No. I wish to have every thing made as plain as possible when any one desires knowledge on bee-matters. I know that was what I wished when I was a beginner in apiculture. But there is one point I came near forgetting, which is this: If the combs of honey which you have are of an inferior quality, or of dark color, or both, then the only thing to do with them is to use this honey for spring feeding; for if such inferior honey is given at swarming time, more or less of it will find its way into the sections, and become mixed with that coming from the fields, thus injuring the sale of the honey stored, and giving yourself a bad reputation, or a bad reputation to your honey."

Convention Notice.

The Victoria Co. Bee-keepers' Association of Ontario will hold its annual session May 23, at Little Britain. We expect Wm. McEvoy and other prominent bee-men to be present. Sessions will be held at 10 A.M. and 2 P.M. All interested are invited.

Cresswell, Ont. A. NOBLE, Secretary.

HOW TO TEST A QUEEN.

A Great Red-clover Queen.

BY EVAN E. EDWARDS.

In 1895 I requeened most of my apiary from a purchased queen. The result was disastrous to the next year's honey crop, the new blood proving worthless. The lesson was so costly that I resolved never to breed from a queen until she was thoroughly tested. I offer my experience that beginners may not fall into error.

My method, briefly, is to send the cash to some reliable breeder, asking for a queen for "business." On arrival she is given to young nurse bees only, at evening, enough of the good candy being gouged out so she will be released before morning. The nurse-bees, queenless for several hours, accept her readily. I allow no stock running in the yard, not even a chicken which might fly upon the hive, jarring it and thereby causing the queen to be in danger of "balling."

After several days I proceed to test her, using the following table of gradation, based on a scale of 1000 points:

THE QUEEN.	
1. Prolificness, from zero to	1000
HER PROGENY.	
1. Honey-gathering	975
2. Non-swarming	12
3. Gentleness	5
4. Long life	4
5. Size of workers and drones	4
Total for the progeny	1000

Honey being my object, "beauty" is not considered at all. I do not add *size* to a queen, because, if she is *prolific*, she will have the size 99 times in 100. When I get a queen having a small thorax and a short, dumpy abdomen, I know she will fall short.

A small abdomen, little ovaries, a stunted capacity for egg-laying, are the rule. I should prefer to buy my queens by weight if such a thing could be done. It takes a 10-frame hive to test the queen's capacity. If she fills it to overflowing, practically all the frames full at the beginning of the harvest, I give her a high grade. If she lays only a few frames full, not enough larvæ to consume the pollen, she is graded accordingly. One frame of brood would equal 100; two frames, 200, etc. If she grades high and her progeny low, or if she is low and her progeny high, then I do not breed from her.

How long does it take to test a queen? I buy mine in mid-season. I get a *partial* test on *prolificness* of the queen — a fair notion of gentleness, size, and honey-gathering qualities by the close of the fall crop. The following winter will test long life.

But the real severe test, and the one that settles the question, is the succeeding harvest. If queen and progeny equal or outstrip the stock I already have, then, and not until then, do I breed from new and strange stock. When I conclude to do so I never fail to carry the test a little further by rearing a granddaughter or two to guard against "back" breeding, for it sometimes happens that the daughters of a queen are the best, yet some of the granddaughters develop undesirable traits. When I put a queen through this ordeal she is "tested." If I requeen my apiary from her she is "select tested."

In 1896 I got a queen from the Roots. The next season showed her superiority over any thing else in the yard. With every colony replaced from this strain I secured an average of 112 lbs. of comb honey per colony.

A GREAT RED-CLOVER QUEEN.

This past season made me an average of 168 lbs. to each colony. I have held on to this strain for dear life, never expecting to find its equal; but in May, 1901, I sent to Root for a red-clover. She came in July, was put through the test, and, without any help of any kind from other colonies whatever, made 308 lbs. of comb honey, and never swarmed! Four colonies having her daughters never swarmed, one producing 196 lbs. Well, I have reared queens now "for all there is in it" from this breeder, and intend to hold on until I can better it. The honey came from white clover. Bees do not work on red clover here except when, by drouth, dry weather following the first cutting, the corolla-tubes are shortened, which has occurred twice in seven years.

I am testing queens every year by my method, getting from well-known breeders. I have been using the "red clover" and one of Moore's strain, which is very good also. For the coming harvest I have one from Alley and one from Victor.

Having no ax to grind in writing this article, and no queens to part with, this is not to be construed as an advertisement for me.

[I hesitated somewhat about letting the three last paragraphs in our reading-columns; then I finally decided to let it go, because it emphasizes a valuable truth that many honey-producers do not take into consideration; namely, that they can increase their profits by getting a good breeding-queen. I am frank to admit that not all the queens sent out by the Root Co. have been equal to this one. While we make a specialty of breeding from stock that excels every thing else in the yard for honey-production, it is, nevertheless, a fact that all the daughters of such queens showing such remarkable qualities will not come up to the performance of their royal mother. For example, one of our customers bought several queens of the red-clover stock. He put them into his yard, and in a year afterward reported that they fell far short of his regular mongrel strain; and he gave us a regular raking-over for selling him such "scrubs."

When I visited Mr. J. F. McIntyre, of California, one of the most successful as well as extensive bee-keepers in the United States, he showed me one row of hives that contained daughters from one of his best honey-queens. It was very apparent from the flying at the entrances (for it was in the height of the honey-flow) that this row of colonies was doing much more work than the rows on either side of it that had common stock. The old adage that blood will tell generally applies, although there will be marked "exceptions that will prove the rule."—ED.]

FILLED SECTIONS WITHOUT POP-HOLES.

How to Prevent Full Sheets of Foundation from Kinking or Buckling when Sections are Placed in the Super.

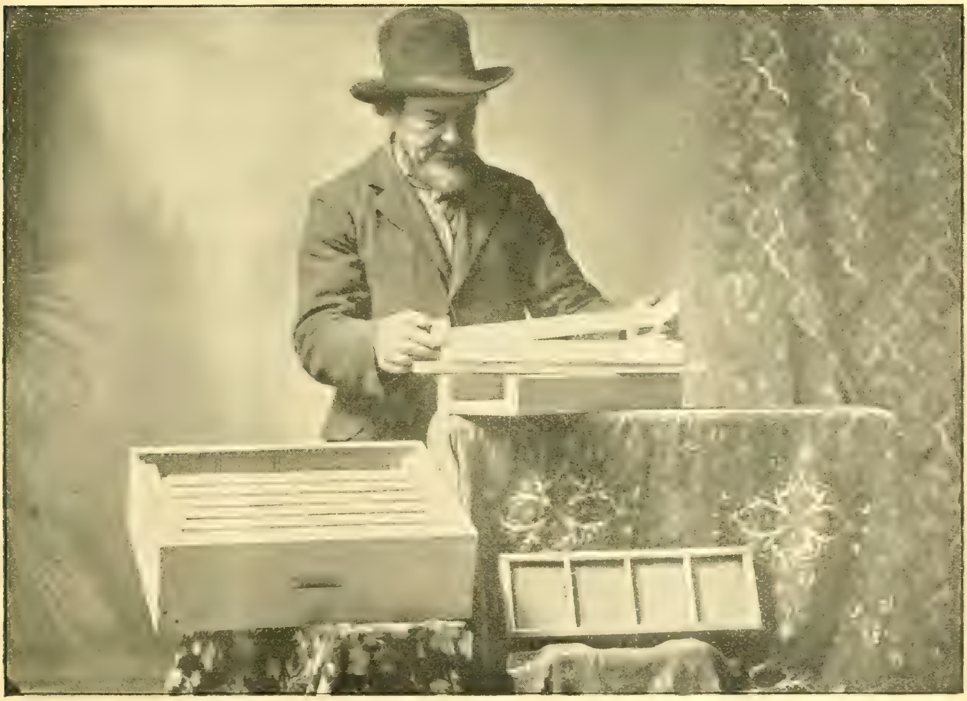
BY G. J. YODER.

In apiculture no other part has been more experimented on than that of getting sections well filled. From the earliest use of sections it was necessary to have a guide or starter to insure straight work; and before the advent of comb foundation I had a few colonies to build new comb to make starters of for sections, varying from one inch square to (in length) the width of the section, and one inch wide. Upon the advent of surplus foundation there were objections on account of too much wax with the honey, especially when large starters were used. This, however, was soon overcome by the thin and extra thin, and at present many are yet using only the top three cornered starter, while some are also using narrow bottom starters to insure the honey being built well down.

This is a good feature, as a section even well filled to within half an inch of the bottom of the section lacks in weight, strength, and general appearance. The time has come when nearly every large comb-honey producer agrees that it is necessary to use full sheets of foundation in order to gain the best results; and right here is where many a blunder is made, not fastening the foundation right to the upper side of the section, leaving it bearing against one side of the section; then when it is placed in the super it kinks over, thus giving poorer results than if a smaller starter had been used.

Many of the foundation-fastening machines, if rightly managed, do splendid work in a single-section way; but it is necessary to cut the foundation a little narrower than the inside of the section, so as to hang clear; but to insure the least amount of pop-holes it is best also to fasten the foundation to the side of the section. This has been mentioned in GLEANINGS as not being practical; yet we have succeeded so well with a few thousand sections, and the results were so favorable, that we are convinced that we have overcome the difficulties heretofore mentioned. Here is our way of doing:

Cut a board the width of the height of the inside of the section you wish to use, and four inches longer than the width of four

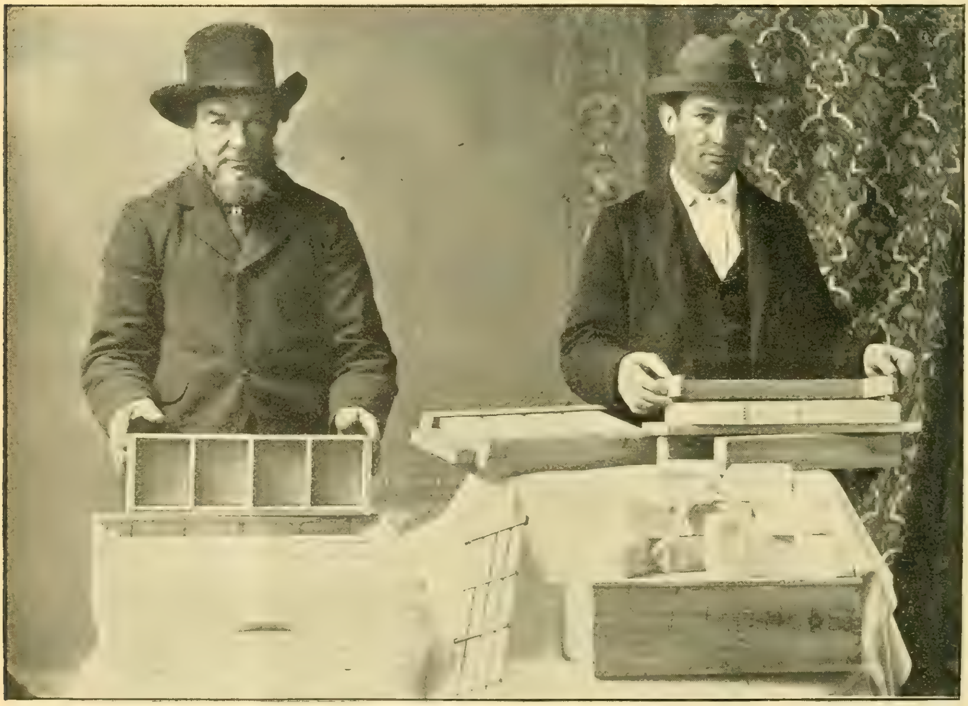


YODER'S APPARATUS FOR PUTTING IN SNUG-FIT SHEETS OF FOUNDATION.

sections outside measure. Next make four blocks the size of the inside of the sections, and in thickness half of the section less half the thickness of foundation to be used. Now place the blocks on the board square, in such a way that the four sections slipped over them take up all the space between the blocks side by side, and yet let the blocks slip readily out of them. Next take a board a little longer than the width of the four sections, and wide enough to admit a two-inch strip on each side — just wide enough apart so that the board with the blocks on will readily drop into it *without the sections*. This, when nailed together, we will call the trough. Have every thing work smooth, but close. Now place your sections on the board with the four blocks, which we will call the tray. Place a section-holder over the sections; bring the tray over the board, with the side strips, or trough; drop the tray into it, and out of the sections; take hold of the section-holder, pressing slightly inward, and you have the idea how they are to go into the super after being filled with foundation in the manner to be explained. Have every thing work well before you try it with foundation. Now to proceed to business.

We cut the foundation in a miter-box to fill the section snugly, except ¼ inch at the bottom. Provide a dish in which to melt clean wax and a little rosin, and mix well while heating. Make a thin wooden paddle, ¾ to one inch wide. Pick up the tray, fill it with sections, and put in the foundation cut to size. See that it is fitted to top and sides of section, lying flat on the blocks. Holding the tray in one hand with one end toward you, tipping to such an angle that, when the wax is dropped with the paddle, it will strike the section where the foundation joins, and quickly run down along the edge toward the top of the section. The moment it reaches the corner of the section, tip the tray so it will pass on one end or side until used up.

A little practice will enable you to do the work with two applications, one from each side of the section. When all four sections are thus treated, lay the tray angling on the trough, as in the photo. Place the section-holder over and around the sections; give the tray a twist, and drop it out of the sections into the trough. You now have the section-holder with the four filled sections which you can place in the super without the least danger of kinking or doubling. You can even fill the entire section, fastening the foundation on all sides, and have the sections filled solid without a pophole, according to circumstances in honey-flow, and whether the full sheet settles, thus placing a little too much wax at the lower part of the comb. It is not even necessary to fasten the sides more than half or two-thirds down. I have hauled supers thus filled for twenty miles without damage.



YODER & SON'S BRICK CANDIED HONEY.

Some may object to the use of rosin; but it is essential to have it in to help harden the wax quickly, and make a sure thing of it. I have used rosin in wax to fasten foundation ever since the advent of foundation, and the bees never objected to it. Some may prefer something else than the wooden paddle to apply the wax to foundation; but by being careful to drop the wax from one corner it is very quickly done; but when the wax is too hot, and the tray held too flat, there is liable to be trouble in having the foundation pasted to the tray. If wide frames are used instead of section-holders, it is advisable to place them over the sections before the foundation is fastened.

Meridian, Idaho, March 24.

[Your plan will work; and, in spite of the fact that it is a good deal of labor, it may pay in the extra price secured for the honey, for the honey would be "fancy." Your tray and trough are all right; but in my opinion you could have a much more rapid method of fastening the foundation to the sides and ends. A couple of hot plates (one to be kept on a lamp-stove while the other was being used), would do the work more rapidly. A rubber bulb about the size of an egg, with a tin tube secured in it, could be filled with hot wax. A slight pressure of the bulb in the palm of the hand would deliver a small stream of wax and rosin clear around the section, when the next section could be filled in the same way.

But, say — you didn't tell us any thing about those bricks of candied honey shown in the photos. I suppose you cut them with a wire.—Ed.]

HOFFMAN FRAME CONDEMNED; ITS WEAK POINTS.

Smokers, and how they can be Improved.

BY F. N. SOMERFORD.

In your editorial on p. 121, in referring to the many extensive bee-keepers who use Hoffman frames exclusively, do they not do so simply because the manufacturer forces them into it by not sending out a suitable frame with the hives furnished to dealers?

You say, Mr. Editor, that in Cuba ten Hoffman frames are used to one of the other styles. Such may be the case; but why is it thus? Simply because they are forced upon us by local dealers and manufacturers. We can get no other that has any strength; but the Hoffman is a weaker frame than most parties think. Even yesterday, in shaking bees from frames while extracting I shook the ends from two of these frames, and they are miserably awkward to handle. The ends or projections are very short, and the end-bars are so broad that they are a nuisance for uncapping. They place too much wood between the brood and the super for comb honey; and as for their preventing burr-combs, I deny that heartily; for have I not been scraping some of them this very day to put excluders on?

In the brood-nest they are a nuisance too, except to a novice or a person not knowing how to space frames. They are too hard and unhandy to take out from the brood-nest, because one can't push a frame or two back on either side of the one he wishes to lift out as with loose frames. By thus shoving the loose frames over, one can be drawn out without exciting bees or queen, but not so with the Hoffman. I feel sorry for a man who has hives full of bees with Hoffman frames who wishes to catch queens

Make the Simplicity frame stronger or thicker at top, sides, and ends, and it will be the frame. Mr. T. F. Bingham well says, "A small good smoker is better than a large bad or poor one," page 132.

I have read after a great many critics on the subject of smokers, and for more than four years have felt like sounding a note against the slipshod way in which Mr. Bingham fastens his smokers together.

The fire-box is fastened on to two narrow thicknesses of tin at each end, which have not sufficient strength for holding a toy, much less a tool with which to work. A lady with a dozen hives for pleasure might possibly use a Bingham smoker a season without its becoming loose and shackly; but the every-day bang and jerk and wear and tear of bee-keepers who make their living from bees, and devote their time to bees, smokers, and honey, need something more substantially anchored to its moorings than is the Bingham smoker.

Of the many smokers that I have used of this make, I can't remember more than one or two which did not break, either from the fire-box or from the bellows. I have just recoopered, riveted, or fastened down two Bingham Doctors the present week. I have four of them, and one Corneil in use. These smokers would be all right if they were always kept as light as they are while standing on the shelves of a supply house. But when loaded for business, with half-seasoned wood, the weight is more than the strength of those two little tin strips will bear, so they soon become shackled, and break off; and the larger the quicker, for the larger ones. The smoke-engine is weaker than the Doctor; so also is the Doctor weaker than the smaller ones, because, while making of greater capacity to hold more, they weigh more when full, yet no provision has been made to hold them together by increasing their strength.

I like the large smoker, but will never buy another until something is done to strengthen them. The Doctors are bad enough, and for hired help and outyards, hurry or rush work and robbers, and constant every-day work, they are unfit as now made.

The hinge is defective too, as made on the Bingham smoker; and of all smokers the Corneil stands the wear and tear the best;

but, owing to the narrowness of the bellows, and poor quality of leather, it eventually becomes a miserable sniffer.

A smoker which has no hook is unfit for rapid manipulation of bees in an apiary of painted hives, gable or excelsior covers, or flat painted ones; for where is one to put the smoker if he does not wish his covers scorched? Would you have a fellow put his smoker on the ground, and stoop down after it every time the bees need a puff of smoke? To follow that plan every day for a week would not be conducive to friendly feelings toward the manufacturer from the bee-man.

I have burned holes in my pants-legs more than once by holding hot Bingham smokers between my knees to have them ready to give the bees a puff of smoke just when they needed it. I don't deluge my bees with smoke upon opening a hive. I just give them a few good puffs, and go ahead with the manipulation; but I want the smoker handy to give an additional puff when necessary, and therefore a hook is most essential to enable me to dispose of my smoker quickly, and yet still have it in easy reach when needed.

Incorporate the hinge, the iron legs, and the hook into the makeup of the Bingham smoker, and it will be all right, and soon win the love and faith of every bee-man.

If the manufacturers of Corneils would put Bingham bellows on the Corneil it would be just the thing too. Which of you are awake to the needs of the fraternity?

San Antonio de los Banos, Cuba.

[I would hesitate to publish this article, criticising as it does the goods of a competitor; but inasmuch as the writer "wades into" the goods made by ourselves I concluded to let it go in. Mr. Bingham can, of course, answer his part of this article.

Regarding the Hoffman frames, it is true there are ten of them used to one of any other among modern bee-keepers in Cuba; and perhaps it will surprise you to know that some years ago I formed the opinion that the Hoffman would not be suitable for a climate like that of Cuba, and strongly urged our agents to get their customers to use, instead, the unspaced frame, or, as you call it, the "Simplicity frame made stronger and thicker at tops, sides, and ends." An effort was made to make a substitution, but the bee-keepers would not have it so. When our Mr. Boyden went through Cuba he interviewed quite a number of bee-keepers, and found they were decidedly friendly toward the Hoffman in spite of some of its objectionable features.

The Hoffman frame, like every other good thing, is not perfect. Supply-dealers have learned that bee-keepers are a peculiar lot. What one uses and praises, another will condemn; and the strange part of it is, the "condemner" does not see how the "praiser" can possibly use such a useless device. We find examples of it in the preferences for kinds and styles of sections; styles of separators; kinds of smokers; and, right here, if there is any one article that has ever been offered to the trade that has given general satisfaction it is the Bingham smoker that our correspondent condemns. As a competitor of Mr. Bingham, I am glad to offer this statement; but especially since it illustrates how differently people will look at the same article.

You "deny heartily" that "the Hoffman frame is proof against burr-combs," implying that some manufacturer or dealer had claimed that such was the case. If you will look at any of the Root Co.'s catalogs you will see a statement that has been running for years, and is still going. In the paragraph that refers to thick-top frames we say "that there will be very few burr or brace combs;" and this is literally true from an extended observation I have made all over the United States, when such frames are compared with the ordinary thin-top frames of years ago. There is no thick-top frame that is proof against burr-combs* entirely. They will accumulate to some extent, especially where the brood-nest is crowded and the honey seasons are heavy, but nothing like what they will do with the thin top-bar.

You object to the shortened projection. If you will refer to the catalog before mentioned you will see that Hoffman frames are supplied with long and short projections. Then you will also find the old Simplicity frame, which you say will be perfect if made heavier, thicker, and stronger, is offered for $1.00 extra.

You complain that the projections to the top-bars are weak. That is true, but we can't change this without changing all the L. hives in use. If father Langstroth had made his top-bar projections ½ inch thick in the *first place*, we would not have this trouble now. But why handle the frames by the projections? I have proved that for myself there is no need of it. I always pick up the frames by the *corners* inside of the end-bars. When one gets used to it, it is handier than the other way. It certainly insures a firmer grasp for shaking. It is sometimes better to unlearn old ways and acquire new ones. We scarcely realize how we are wedded to old practices until it is suggested that we divorce ourselves from them and adopt new.

The reader will pardon what may seem to be something like a trade talk; but there are hundreds of people who wish to know the truth on both sides, and we have given both sides of the question. Let me emphasize more strongly than I have done already the fact that a device that is regarded as simply perfect by one bee-keeper may be condemned to the extent of absolute abhorrence by another one. Supply-manufacturers have been compelled to meet the need of various preferences by furnishing several different kinds and styles of frames—frames shallow, frames Langstroth depth, frames Quinby depth, frames unspaced, part closed-end frame, and closed end throughout, etc. The same variation exists in the hives and in the supers.

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* When I use this term I mean combs built on top of the bars.—Ed.

Speaking about smokers, I am rather of the opinion that it would be better for Mr. Bingham and ourselves to use a much heavier grade of stock in the stoves or fire-barrels of smokers where the same are to be used by bee-keepers operating 500 colonies or more. I am sure friend Bingham will be perfectly willing to furnish — certainly we are — a heavier grade of metal for those who desire it, at an expense that will be only trifling; but it will hardly be necessary to tax the great majority of smoker-users with an expense that will be entirely unnecessary by making all the smokers of heavier stuff. This whole question of supplies resolves itself down to the matter of furnishing each bee-keeper what his special needs call for.—Ed.]

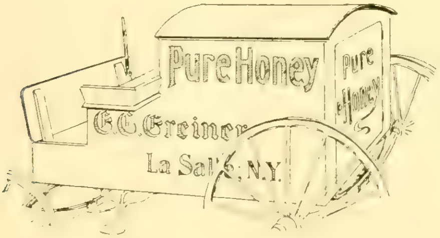
SELLING HONEY.

A Convenient Traveling-outfit; an Excellent Article.

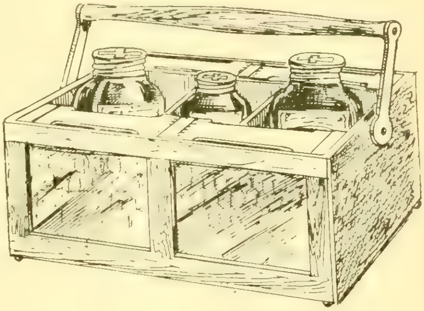
BY G. C. GREINER.

Selling honey on the road is, for many of us, not an enjoyable occupation, and it is made still more unpleasant if we have not a convenient outfit.

For a number of years I have used a square-box one-horse buggy for my honey-expeditions. Although convenient in other respects, it did not serve this special purpose. To take my usual daily load of from four to six crates of extracted honey, and a small allowance of sections, I had to call into service all available space under the seat, on the seat, on the bottom in front of the seat, etc., which contracted my allotment of space to most uncomfortable quarters. But this was not the worst feature. As much as I tried to keep my goods clean, and keep them from getting dusty by covering up with blankets, when I uncovered them to make an exhibition they would have, to my annoyance, a very perceptible coat of dust all over them. When it was muddy, and no dust flying, the same trouble had to be encountered. The wheel would occasionally throw chunks of mud in the box; these would work themselves under the crates, be pulverized by the constant motion of buggy and crates, and, consequently, the unsightly appearance would be the same, wet or dry. I was generally compelled to give my samples a regular dusting before I could make a call to show my goods.



To get out of this dilemma I studied out and built during last summer's leisure hours the wagon which is shown by Fig. 1. It is the same running-year, the old box being removed and the new one put in its place. Outside of my own work the whole expense of the rig does not exceed $2.00 — a mere trifle in comparison to the convenience and its adaptability to the business. Most of the material is taken from discarded dry-goods boxes which were lying around and considered worthless.



The advantages of the rig are many. The enclosed back part is practically dust and water proof. Being a double-decker, the space for storing is ample. It will hold four crates below, and, if necessary, the same above, the quantity it was designed to carry. The open front and seat are spacious enough to provide a comfortable place for the driver, with an additional large storeroom below the seat.

As will be noticed, the wagon is conspicuously lettered "Pure Honey." This is one of the most important features of the rig. It helps to make many sales that would otherwise not be thought of, and it saves the salesman an unlimited amount of talking and a great deal of time. As an illustration I will refer to only that one case when the druggist was induced to inquire for the honey-man, and the sales that followed, just because "Pure Honey" was in plain sight.

To make the advertisement complete, my name and address are added. This, too, is, in many instances, the cause of sales. A short time ago, when I was driving along the street of one of our neighboring cities, a passerby on the sidewalk motioned to me to stop. Then he said: "If you are the Greiner who supplies such and such a place, I want some of your honey." Of course, a sale was made right there and then, which tallied one more for the lettering.

In Fig. 2 is shown the sample case, which I take with me whenever I enter a house or store where I expect to sell honey. I always sell right from the case, and refill again when I return to the wagon. Formerly I used a small valise in which I carried one can and a glassed section as samples. This answered quite well until it appeared to me that a more attractive and inviting display of my goods would be a great advantage. In this I was not mistaken. My little sample case just filled the bill. It is simply a partitioned-off crate, glassed on both sides, with jointed handle. It holds four sections and three cans; being all finished off in good style, stained and varnished, like any well-made furniture, it presents, when filled, a neat and tasty appearance. Like the lettering on the box, it speaks for itself wherever I expose it to view, and I am almost always sure of a sale if I can induce the members of a household to notice it at all.

In conclusion let me say once more—it can not be repeated too often—that in selling honey it is the neat appearance that has a great bearing on being successful as a salesman. Honey being naturally a mussy article to handle we have to take extra pains to present it in clean shape. I never load up my wagon without using a damp cloth on all my cans that show the least sign of dust or stickiness, and the same with sections. I examine every one before I start out. If any have leaked and are daubed up, or dust has gathered on them, the damp cloth is called into requisition.

La Salle, N. Y.

MODERN QUEEN-REARING.

Swabbing a New Cup with Royal Jelly is all that is Necessary to Have Them Accepted; Cell-protectors Unnecessary with Wooden Cups; the Advantage of Flange Shells; Queens Laying in Compressed Cups; only 200 Bees Needed to Mate a Queen.

BY E. L. PRATT.

It was at the suggestion of Mr. Alley, I believe, that this controversy on queen-rearing methods has started. It's interesting, Mr. Editor, and I hope you will keep it up until all on the subject is out.

I have carefully read what your Mr. Phillips has written, and find that your practices at Medina pretty closely resemble those at Swarthmore. There are a few points, however, I take the liberty to criticise as being either wasteful, and in some cases extravagant or unnecessary.

In the use of royal jelly, for instance, upon which to deposit the larvæ when lifted from the comb—such a practice is fussy, and entirely unnecessary, therefore wasteful—wasteful in time, patience, and quality of queens. Larvæ at an age fit for transferring have no mouth for eight hours, and have no use for food if it is given them. Even if they had use for it, is stale food wholesome? The bees say no, and at once proceed to remove the obnoxious stuff. There is but one good purpose to which second-hand royal jelly can be put, and that is, to swab into new cups to give them a prime odor. Then if you will give the cups to any bees they will clean them out fit for the reception of royal larvæ, and you may rest assured that cups thus treated will be accepted every time without fail.

Mr. Phillips recommends the cell-protector when ripe cells are given to queen-mating nuclei—an entirely unnecessary practice when wooden compressed cups are used. Bees *are* apt to destroy cut or broken cells because of the ruptures in the wax about the base, made by breaking or cutting the cells from a comb or bar. They seem to attempt to mend these ruptures, and in doing so, accidentally or otherwise, cut into the delicate fillet of the cell, after which the hole is soon enlarged and the larva is at last cast out. Not so with cells built upon wooden cups, for the simple reason that no ruptures are made in removing them; they remain natural—cell, base, and all—just as the bees built them—no mending is needed, therefore no destruction occurs. *Cells built upon Swarthmore wooden cups may be placed in the midst of any colony as soon as the old queen is removed from the hive; and if they do not hatch before twelve hours the virgins will be allowed to live and mate.* Cell-protectors, for protecting cells, are out of place in modern queen-rearing, for there is no real use for them.

Another wasteful practice is the destroying of good compressed cups each time virgins have hatched from them. Why not have a cell-cleaning board on top of some hive, in a convenient location, into which board all cells may be quickly thrust at any time? The bees will then clear the cups out ready for another grafting, and still another and another. A good stock of reconstructed queen-cells is one of the most valuable requisites to a queen-rearing yard. We have cups that have been in use for more than three years—the oftener they are used the better they seem to work, so say a good many who are using wooden pressed cups.

The most wasteful practice of all in cell-handling, it seems to me, is the leaving-off of the flanges on the wooden cups. By the way you work them, attached to the under side of a bar, in the middle of a frame, you are obliged to disturb your colony each time an examination is made, which not only sets the bees and the cells back, but entails a lot of unnecessary labor in lifting combs, smoking, in prying, etc. The idea of the wooden cup is to *save* time and labor. When you leave off the flange and substitute a tack you destroy half the labor-saving quality of the cup. You can not get at your cells attached to the under side of a bar, in the middle of a brood-frame, without lifting the comb. Cells do just as well, and in many cases better, on a line with the top bars in the midst of the brood-chamber. This being so, why not have your top-bar removable to save drawing the frame? Then all you will have to do to cage a lot of cells behind perforated zinc is to lift the bar and insert it in an open-top frame. By boring a series of holes in this removable top bar you will have something still more convenient, in that you can remove one or all the cells at any time without disturbance to the colony. Simply thrust the wooden cups through the holes, and they are in such position that they can be manipulated, one at a time or by the barful, through a split in the sheet without tearing the colony asunder each time you go for cells. Much smoking and much handling destroy bees' prospects at honey, and in wintering well. The flange will prevent the cup from dropping clear through, and they are never waxed enough to prevent their ready drawing without the least trouble. We seldom use smoke in cell-shifting nowadays.

Why does Mr. Phillips do his grafting from large combs when small ones are so much more convenient to handle? furthermore, the life of a breeding queen can be prolonged on small combs. If a small comb, filled with compressed cups, is placed in the midst of the little breeding-hive, the queen will lay directly in the cups and save the trouble of transferring or grafting larvæ altogether—simply remove the cups and set them in holding-shells, supplying other cups in the frame for the queen to lay in. As with the grafting-cup, these forcing-cups may be used over and over.

In closing I should like to venture the statement that any queen-rearer who uses more than a hundred or two of bees in a nucleus for mating a virgin queen is not using the most economical plan. We seldom put more than 100 bees, often less, into our fertilizing-boxes, which we shall this season set out in large numbers; and if you happen our way, come out and see for yourself. Queens fly from these boxes just as freely as from a full colony, and mate as promptly. I might say that full-sized frames are out of place in a modern queen-mating yard run with the best economy.

Swarthmore, Pa., Dec. 15.

[Mr. Pratt has certainly been up to date, and perhaps even a little ahead of the times, in his methods of rearing queens. I believe it was he who first suggested making the cell-cups under pressure with a suitable die; and while he was not the originator of wooden cell cups, he may have been the first to put them into any thing like extensive use.

Regarding grafting, it may be necessary to paint only the inside of the cups with royal jelly; but whether it is or not, it does not take any longer to put in a drop than it does to smear the inside to give it the proper smell.

There may be an advantage in having the wooden cups with a flange; but as we work, I can see no advantage. Of course, it is possible to pull out a cell on the Pratt plan without lifting a frame; but when one removes the frame he can take a pick of the best; or he can discard those that have been rejected, and substitute others in their place much quicker than he could pull out the flanged wooden cups one by one to determine which ones of the number have been rejected or were in any way defective.

Mr. Pratt is to be congratulated for so persistently advocating the possibility of queens being fertilized in small nuclei. We have heard from a couple of good breeders who have succeeded with small lots of bees, but not with original nuclei hanging on stakes as Mr. Pratt first described. It was these that some of our subscribers tested; and if friend Pratt could have heard some of their comments, he would not have felt flattered to say the least. But not all good ideas are successful the first time. During the process of evolution there are necessarily more or less changes to be made until success is finally secured.—Ed.]

FURIOUS ROBBING.

Prevention Better than Cure; the Porter Bee-escape, and How it may Prevent Trouble and Stings.

BY WM. M'EVOY.

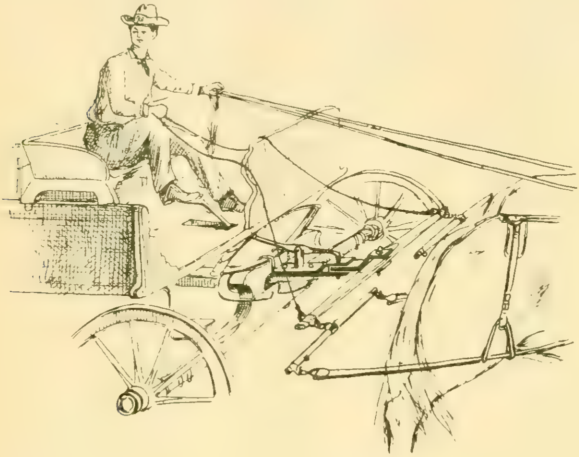
Last season, while driving up a farmer's lane in a locality where the honey-flow had come to a sudden stop about the last of July, I saw the owner of some 60 colonies of bees and his help taking off his crop of honey, and bringing it into a woodshed where the bees were entering almost every part of the building, and in there the extractor was kept moving at a lively rate, and so were the bees and every thing else. The day being extremely warm, and the bees not finding any honey in the fields to gather, they looked well after what the farmer was taking away from them. I had sent the livery horse a long distance away to be tied; but when I saw the raging storm of angry bees robbing and trying to sting every thing that came in sight I dreaded the bees hunting up the horse and causing a runaway, and rig for me to pay for. These fine people kindly offered to get me a veil. I thanked them, and said that I did not need one, as I always protected myself with a good smoker, and had not worn a veil in over 25 years. At last the bees became master of the situation, and put every one out of business.

I advised the bee-keeper to get the real Porter bee-escapes, and in the evening to put one under each super; and in the second evening after he would find the bees practically all out of the supers; and then in the evening, when all was quiet, remove all the supers to a good tight room and do the extracting there.

I live right in the center of a village where I keep about 200 colonies; and just as soon as I find the bees inclined to rob I put the Porter bee-escapes under the supers and then take off the supers after the bees have gone down, and don't have any robbing at all. By managing the business this way my bees remain very quiet, and are never troublesome.

Woodburn, Ont., March 12.

[I wish this little item of our friend McEvoy could be pasted in the hat of every beginner bee-keeper. Indeed, I am not sure but I will have it struck off and inclosed with every dozen escapes sent out; and, say —I have been in bee-yards of old veterans who either did not seem to know about the trick of keeping bees quiet with escapes, or if they did know it they were so careless as to go ahead and extract just to save time and "do the job up all at once." I grant that sometimes at an outyard one can not wait to put on escapes; and it becomes necessary, therefore, to shake and brush. Even then the extracting-house should be bee-proof, with bee-escapes on it to let stray bees that come in on the combs get out but not in. I do not believe it is wise for even the veterans to let the bees get on a rampage. There are many people nowadays who are anxious to begin a damage suit, and there are plenty of lawyers out of a job who would like to be retained. The old adage, "An ounce of prevention is better than a pound of cure," fits this case exactly.—Ed.]



DULEY'S SAFETY DEVICE IN USE READY FOR EMERGENCY.

DULEY'S HANDY SAFETY DEVICE FOR MOVING BEES.

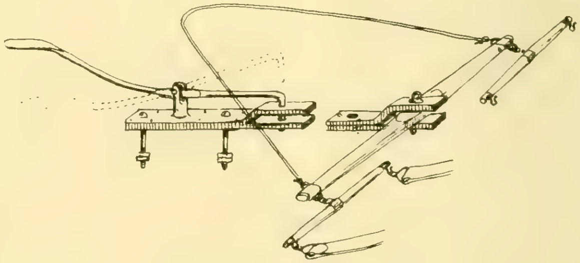
A Good Suggestion.

BY G. W. DULEY.

I have a device which I use in hauling bees, of which I send a drawing and description. Take a wagon with breast-yoke; remove the doubletrees, and in place thereof fasten a clip made of 2½ × ¼-inch iron in the manner shown, with two half-inch bolts. Now take the other clip with doubletrees and slip into the first clip, and fasten the same with the lever-dog. Leave off stay-chains. The driver sits with his foot on the lever. Should there be any danger he presses down on the lever and lets the team loose from the wagon, and moves away out of danger.

I would never think of hitching a valuable team to a load of bees without this device to let them loose. There is no time to unhitch traces when bees get on a team.

The driver sits with his foot on the lever, and holds the doubletree rope. Should there be any danger, press the lever and release the team from the wagon, and drive out of the way. He holds the doubletree off from the horses' heels by means of a rope. We don't have to stop the team at all—don't have any traces to unhitch; in fact, there is no time for such work. All we have to do is to press the lever. The wagon will sometimes run several feet after the tongue falls to the ground. I have no more fear in hauling a load of bees with this little device than I do a load of corn. I just load the bees on the wagon in any way, and start over these rough roads of Livingston Co. My! You would think the bottom-boards would all be shaken loose. But what do I care? I can get out of the way, just the same.



DULEY'S SAFETY DEVICE FOR RELEASING TEAM WHEN HAULING BEES.

Smithland, Ky., Feb. 12.

[The drawings are sufficiently clear so that any one can take them to his blacksmith-shop and have an outfit made at comparatively little expense. But instead of having a long slot cut through the floor of the wagon, mutilating it, I would have an upright standard with a pedal piece mounted on top, the standard passing through a ⅜-inch hole in the wagon-box at the right point to pivot on the end of the lever. This will save mutilating the wagon; and if a cotter-pin is used to shove through the holes forming the pivoted joint, the pedal standard can be easily removed.

This device is so excellent that I think it would pay any one who has much hauling of bees to do, to have it put on his wagon. One fracas might pay for several hundred of them. I would put it on any way, as a matter of convenience and the saving of time in hitching and unhitching. Load the wagon up with bees without the horses being hitched to it. When the load is all on, pull the doubletree over; hook it into place; get in, and drive to the outyard. On arrival, unhook the team, drive it off to a point of safety, and unload the bees. As soon as the wagon is empty, push it out of the flying bees by hand, and hook the team on and drive off. The device would be very handy and a time-saver, even when the horses are not being stung. As a means of preventing accident, it would be worth many times its cost.

No doubt some will think that a rope hitched to the ordinary king-bolt would be just as good. As I see it, it would not be nearly as efficient. The unhooking with the Duley device is accomplished with the foot, leaving *both* hands free. One hand holds the lines and the other the rope that holds the doubletree. In a real fracas, where the horses are being stung, and they are plunging, the driver would be pretty badly handicapped if he attempted to hold the doubletree off from the horses' heels. If they were rearing, it might be a difficult matter to pull the king-bolt out.

It is the consideration of these little things in bee-yards that makes all the difference between success and failure.—ED.]

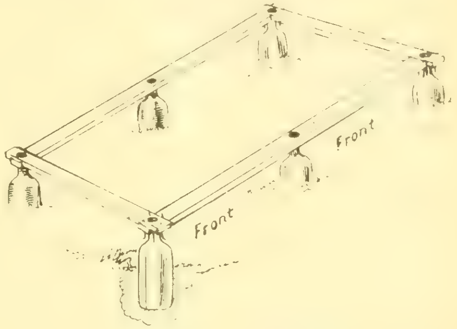
GLASS-POST HIVE-STAND.

Cheap, Durable, Lasting.

BY DR. J. W. GUYTON.

Our twentieth century demands something new, cheap, and durable in the way of a stand for our hives to rest on. This I offer to the bee-keeping public in the form of bottles for legs. I get the longest quart bottles I can find, and with a hoe I make a set of four or six holes—four holes for one hive and six for two hives. These holes are set at regular distances apart to receive the bodies of the bottles. I set them in about half their length, with the mouths up. The bottles are to be leveled up with a straight board and a spirit-level. Put them in straight rows just where you want your hives to be, and have them face just the way you desire your hives to stand.

Now take some 1×2 stuff and have it smooth and well painted for the hives to rest on. Cut them two or three inches longer than your bottom-boards are wide; or if you want to have a double breaster, cut them long enough to reach clear across all three bottles. Now drive a four or five penny nail through the timber just over the mouth of the bottles. Leave not less than one-eighth of the head end of the nails up. These are to hold the bottom-board from slipping and sliding about, and the lower parts of the nails will hold the rails on the mouths of the bottles. Hard winds will not slip either rail or hive.

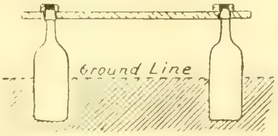


GUYTON'S HIVE-STAND MADE OF OLD BOTTLES FOR GROUND SUPPORT.

Such a hive-stand is very simple, and the glass posts are everlasting so far as decaying is concerned. It can be made very cheap and serviceable as a dual stand or for three hives if preferred. I consider such a stand a most excellent one—so good that I shall adopt it for all of my hives.

If desired, four pieces may be used to constitute the frame-work, and these securely nailed together. Then a longer nail will be required to reach through and down into the necks of the bottles. Such a frame might be necessary where three or four stories are left full of honey for any length of time.

An auger-hole may be made to receive a pin that will fill the mouths of the bottles instead of holding the framework or stand with nails. In this case I would allow a quarter of the pin to stand above to prevent the bottom-board from slipping. Shorter bottles, such as pint beer-bottles, could be used, and bought some cheaper.



SECTIONAL VIEW OF HIVE-STAND.

A long black bottle with a deep recess or sink in the bottom could be used and set up much more easily by taking a wet spell to do the bottle part of the work. The necks could be pushed into the ground up to the shoulder of the bottle, and the concave end used to hold the framework by means of small blocks of wood being cut just the size of the recess in the bottom. These long bottles will hold the hive-bottom up so that one's feet may be shoved under the hive; besides, they hold the hive up from the ground away from moisture, toads, rats, etc., as well as at a convenient working distance, thereby doing away with so much back-breaking toil.

This stand puts one's second stories and supers up just right so any one can do almost all the day's work in an upright position. It's just the right height for a double-decker queen-nursery. I have been reading the different articles in Gleanings on hive-stands, and thought this might be new to some of your readers, and might be of some benefit to some one as a hive-stand, as they are coming to be more and more adopted by apiarists.

Almost any one can pick up bottles enough for a small apiary, free of cost, and can make the stand very cheaply.

Levita, Texas.

STAKES FOR HIVE-STANDS.

Some of their Advantages Set Forth.

BY C. C. PARSONS.

I find on page 392, 1903, that you were favorably impressed with the idea of placing hives on stakes driven into the ground. I notice also, p. 224, 225, Dr. Miller's warning, and his suggestion that clipped queens would not be able to get back, and that it would be inconvenient for loaded bees to enter hives thus arranged.

Before reading these articles I supposed many bee-keepers used stakes to support the hives, and that bee-keepers generally were acquainted with the plan. For more than fifteen years we have used stakes only for hive-stands. I do not know where I got the idea. It may be from some generous apiarist, or it may be that I stumbled over it as I groped in the dark.

We use pitch pine for stakes, and we are careful to have it very pitchy, so that the stakes may not rot. We split them out about 1½×1½×18 in., and drive them into the ground so that the rectangle formed by them as corners is 11×18 inches. The stakes for the front of the hive, when driven and leveled, are 10 inches above ground, and those for the rear are ½ in. higher. Let those who fear that they will not hold up the weight of a hive plant one stake as above, place 200 lbs. on it, and note the result.

I will now give a few reasons for preferring this style of hive-stand. It is cheap. It is applicable to all kinds of surfaces. It is adjustable to any height, to meet the demands of the apiarist. It admits of keeping the yard clean, and a free circulation of air under the hives, thereby preventing early decay, and adding to the comfort of the bees. They stay where you put them.

Now a word about the queens and loaded bees. A runway from the ground to the alighting-board is provided. It may be made of any odd pieces of plank or other material that may be at hand. We use old iron roofing. Two small nails are driven into the end of the bottom-board, eight inches apart, leaving the ends projecting ½. These are turned up. Two small holes are made in the iron near the edge, and it is hung upon these nails, and the lower end is allowed to rest upon the ground till swarming time. At swarming time a small stick is stuck into the ground near the post or lower end of this runway-board, so as to hold it an inch or two from the ground. The *edge* of the runway-board should not rest upon the stick, but should project an inch or two. When a swarm issues, the chances for her to enter another hive are few. Dirt has collected upon these stakes near the ground, and it is very hard for the queen to get over it; so when the bees return to their hive the queen is attracted to them, and, very many times, not finding her way into the hive she will climb up one of the stakes which the bees have cleared of its loose dirt, and will be found by the apiarist, when he returns, clustered with the bees on the bottom of the hive, while the toad that would have been blinking at it through a hole in the old box-hive stand is in the garden sitting under a cabbage, looking for cut-worms. Don't be afraid to tell the children to use stakes.

Bluff Springs, Fla., Mar. 7.

[If the hives do not stand too high from the ground, and the alighting-board reaches from the ground up to the bottom-board, every objection will have been removed. My present belief is that four stakes (or old bottles) are cheaper than any other hive-stand for single hives; and, what is of considerable importance, one can run his toes under the hives when he reaches over to the opposite side to lift out a heavy comb. When one has to stand toe length away from the hives to lift combs he puts that much more strain on the back—a strain which, while not excessive, is very wearing when *continued all day*. A good deal of the work in a bee-yard is stooping, and to some extent "backbreaking," if I may be permitted to use a common hyperbole that is readily understood.—Ed.]

ADVANTAGES OF THE FENCE SYSTEM.

The Value of the Outside Fence for Outside Row of Sections.

BY M. P.

I am a boy of 200 lbs., and am just passing my 53d winter. I have kept bees for 24 years, though I never counted them by the thousands, nor even by the hundreds; yet I have been a close observer, and tried many different appliances pertaining to bees and honey.

On page 184 C. H. Dibbern gives some objections to fences, which are contrary and misleading, according to what my experience has taught me. In a footnote to the above you say: "We want the truth, cut where it may. Let us have reports."

Before the advent of the fence separator I had tried various forms of supers, and finally settled down to the 7-to-foot section without separators, but with four beeways. The theory of this was, with separators each section would be divided off into a compartment by itself, cutting off all communication with the bees in the neighboring section, with the result that the bees were slow in entering the super. Taking away the separator, bees would have freer communication, and enter the super more readily; and opening the section at the side would give them still more communication, and cause them to build their combs straighter.

Now, practice has fully carried out the above theory with me; yet I admit that combs were somewhat irregular, but not to an alarming extent, yet enough so that I was ready to try the fence separator as soon as it made its appearance, with the result that I have adopted them and am using them exclusively, and I never expect to find any thing better.

Mr. Dibbern says: "I have used these fences quite extensively; but with me there is too much trouble with brace-comb; also, in a few years the bees will gnaw the strips and thus leave the combs ribbed." Now, this is all contrary to my experience. Mr. Dibbern may have used them more extensively than I have, but not any longer in succession, and I never had any trouble to speak of with brace-comb. He thinks the trouble with brace-comb is increased in the tall section. Now I am using the five-inch-tall section, and have no more trouble than I had with the slotted separator in a 4¼ section.

As to the gnawing of the strips, I will say I have not noticed this in the least in my experience, yet I will admit that I had some combs slightly ribbed — that is, the bees would build a small rib on the comb right opposite the crack in the fence. This, however, was due to overcrowding, and these sections were always too heavy. Bees should never be crowded to this extent for room.

Now as to the slotted separator or fence. I am convinced by actual test that these cracks in the fence are of great importance in giving the bees a freer communication. For several seasons I had only 500 fences, so I would use only 5 fences to the super in about half of my cases, with a thin board on the outside, which, of course, had to be cleated. The other half of the supers were used with fences on the outside as you recommend, with the result that, in nearly every instance, the outside row of sections of those supers that had fences on the outside was well filled and finished, nearly as quickly as the center sections; while those that had only thin boards on the sides were badly filled and slowly capped, and had to be sold at a discount. M. P.

Kalona, Iowa.

[Your experience is in line with other reports we have received from time to time; but we have hesitated about publishing them, as it might be considered we had an ax to grind; but as all the manufacturers are making plain sections and fences now, which was not the case a few years ago, perhaps we may not now be accused of a desire to sharpen the aforesaid ax. If comb-honey producers could only know that in some markets, at least, they could get *better* prices, and in all markets no *lower* a price than for beeway sections, they would find they could not afford to use the old-style section and separators.

But in some localities, and with some strains of bees, there is an occasional difficulty of the kind complained of by friend Dibbern; but even these objectionable features are overbalanced by good ones in the mind of not only Mr. D., but of many others.

The scheme of using an outside fence for the outside row of sections is in line with the perforated separator so persistently advocated by our friend S. T. Pettit, of Ontario. His arguments in favor of such a separator, and the preliminary trials of using an outside fence, were so convincing that we equipped all our supers for the trade with two extra fences. A bee-keeper who would not use a perforated divider or fence for his outside rows, it seems to me is very shortsighted indeed. Suppose he gets a cent a pound more for his outside sections; that would be 8 cents for the super, or $8.00 for 100 supers. This earning is not very much, it is true; but it is the saving of these pennies that makes the dollars *and the profits.*—Ed.]

TROPICAL HONEY-PLANTS.

Their Value for Honey-production.

BY W. K. MORRISON.

It used to be taught, and even now is believed by intelligent persons, that the flowers of the tropics are inconspicuous, and the birds non-singers. Even so able a naturalist as Dr. Alfred Russell Wallace, the justly celebrated evolutionist, and author of famous works on tropical natural history, states in his work on the Amazon region that the tropical regions could not compare favorably with the temperate in the matter of flowers; and not long ago an intelligent English lady who had spent seven or eight years in the tropics said to me, "Oh, my! Mr. Morrison; I don't see how bees can exist out here, as there are no flowers." For an answer I asked her just to look out the door and see the mango, avocado, logwood, golden apple, genip, and other trees in full bloom. "They have eyes to see, but they see not." In point of fact, no pen, however nimble, can do justice to the flowers of the tropics; and I can well remember A. I. Root's astonishment at seeing bougainvillea in full bloom for the first time; and there are many other flowers equally astonishing.

As is usual in more northern countries, many of the fruit-trees are excellent nectar-bearers, but some are not. That magnificent fruit, the sour-sop, and its relatives the sugar-apple, cherimoyer, and custard-apple do not produce nectar, neither does the bread-fruit family. But we bee-keepers have no reason to complain of Dame Nature in the tropics, for she has been lavish to excess.

The avocada pear, which is not a pear at all, is one of the best producers of really good honey; and when this fruit comes to be grown on a large scale, as it deserves to be, it will cut a great figure in tropical bee-keeping.

The golden apple (*Spondias dulcis*) is a first-class honey-producer, quite equal to basswood or any other northern tree. This is a fruit that would probably cut a great figure with fruit-evaporators and canning-factories. It certainly has a "future" before it in Cuba and the south of Florida.

Malacca apple, pomerosa, or pomme-erae, is a great tree for the bees, and no mistake. They can't get at it too early in the morning or too late in the evening. Americans generally regard the fruit more as a vegetable than a fruit, resembling a radish in taste and texture. As it blooms two or three times a year it is very valuable to us. It is probably as valuable to pig-raisers as it is to bee-keepers.

The tamarind is one of the great trees of the tropics, furnishing the famous tamarind syrup of the drugstores. It is a fine large umbrageous tree, valuable in various ways. Its wood is somewhat like basswood; and if as common as the latter is in Wisconsin it would cut quite a figure in West-Indian bee culture.

Cocoanut (*Cocos nucifera*). I have already alluded in another contribution to the value of this great tree to tropical apiculturists. It is almost impossible to overstate the value of this nut to the agriculture of the tropics, bee-keeping included.

Date (*Phœnix dactylifera*) is, strictly speaking, semi-tropical, but will grow in drouthy tropical countries. It is extra valuable to the bee-master.

Coffee is a fine honey-plant, but labors under the serious drawback of blooming only one or two days. However, where coffee is grown at different elevations in the same valley its period is prolonged. The flowers are exquisitely white, and borne in profusion. The Liberian coffee does as well as the Arabian.

Nutmeg is not a nut at all, but a fruit bearing a great resemblance to the peach. The nut, so called, is the kernel, and the mace surrounds it. The fleshy part of the fruit is not esteemed in the West Indies, yet it makes a good preserve, American fashion, and makes good pies or dumplings. In a nutmeg-grove trees may be found in bloom any day in the year, and the bees work on it from morn till eve; hence any locality where this tree is common must be a good one for bees. In Grenada there are several fine large groves of nutmegs. One in particular, the Wells estate, is very fine; and during the life of its owner, who was a bee-keeper, it must have furnished a lot of fine honey.

Genip (*Melicocea bijuga*), a fruit-tree, is a very heavy honey-bearer. In Jamaica, where it is common, it forms one of the chief assets of the bee-keepers.

Hog plum (*Spondias lutea*) is a first-class honey-plant.

Maiden plum (*Comocladia integrifolia*) is also a good honey-plant.

Mango (*Mangifera Indica*). This great fruit does not stand very high with me as a honey-plant; but it may be better in some localities than others.

Sapodilla. This very nice fruit is produced on a large spreading tree like a live-oak. It is a very fair honey-yielder. In the island of Curacao I found these fruits rather larger and finer than elsewhere in the West Indies; and, what is most important, cheaper, three large ones for a Dutch cent, equal to one-fifth of an American copper. There may be a hint here to grow this very plain-looking but sweet fruit.

Loquat. This is a first-rate honey-bearer, and seems to bloom when nothing else does. It seems to me the Florida orange-growers north of the "frost-line" might grow this acid fruit for canning purposes. It is certainly well suited for this use; and taking this with its honey-producing qualities we ought to hear more about it later.

Sugar-cane—not a fruit exactly, but well known to everybody. The "arrow," or flower, seems to furnish both pollen and nectar, and the cut cane exudes nectar, which the bees eagerly collect.

Rose-apple, or pomme-rose (*Eugenia jambos*), is a good yielder, but never common.

Clammy cherry (*Cordia collococca*) is good.

Bastard cherry (*Ehretica tinifolia*) is also good.

Barbados cherry (*Malphigia glabra*) is a good honey-plant.

Chocho, christophine, or chayote (*Sechium edule*) is both a fruit and a vegetable, and an excellent bee-plant. Southern readers should keep their eye on this plant.

Raspberry (*Rubres rosæfolius*). In some islands, at an elevation, very good wild red raspberries are found, and these the bees work on while in bloom. Curiously enough, in the French-speaking islands it is termed a *strawberry* in the Creole patois.

Seaside grape (*Caccoloba uvifera*). This is not a grape, by any means, but it is a very fair honey-producer. The honey of this tree looks and tastes like that from basswood.

Among the forest-trees of the tropics there is no end to the nectar-yielders; but neither myself nor any other person or legion of observers could in a generation even approximately tabulate them. I have seen many that are not mentioned here, for the reason I did not know their names, and probably they have no name as yet; but their number is legion. It may be asked, if nectar-yielders are so common in the tropics, why do we not secure immense yields? During the greater part of the year it rains so incessantly as to prevent the bees from getting sufficient for their actual wants, and with a warm temperature their wants are great; hence feeding is sometimes necessary. When the dry season arrives, however, the tables are turned; and with the forest one vast mass of flowers it literally rains honey. It must not be supposed that, because there are no beekeepers, there are no bees. On the contrary, stingless bees in countless numbers people the forests and fertilize the seed; and as they resist wet-weather conditions better, they hold the field. If the torrid zone ever becomes a great honey region it will be by domesticating one or more of the stingless bees inhabiting the region. He will be no amateur bee-man who effects the conquest, and his name will appear on the list of immortals high above Reaumur, Huber, Langstroth, and Dzierzon; for if we consider the extraordinary extent of the tropics it will be evident that the production of honey might be fabulous in amount. However, this much does appear; and it is a matter for the greatest jubilation that many of the most celebrated tropical forest-trees are really large nectar-yielders, excelling the finest trees of the temperate zone.

Heads of Grain
from different fields

THE CHARACTERISTICS OF BISULPHIDE OF CARBON; HOW TO BURN BRIMSTONE IN FUMIGATING COMBS.

On page 179 we notice you say you can not detect fumes (sulphur) from bisulphide of carbon. Just take a spoonful and pour it in a teasaucer. Take a match and light it, and hold it about an inch over the bisulphide of carbon. It will take fire something like gasoline. The fumes will be of sulphur. Bisulphide of carbon is half pure sulphur, the rest is carbon. I think the bisulphide would run an auto, but of course the sulphur would be detrimental to the ironwork of the machine. We used bisulphide of carbon years ago for brimstoning honey, in the same way sulphur is used, by burning. We now prefer the brimstone. Brimstone is much cheaper. The only reason we used bisulphide was on account of its being so easily lighted. We can now set brimstone afire and it will burn till all is consumed. If you try to set it on fire in an earthen or iron vessel with simply a match it will go out every time, for the reason the iron conveys the heat away so fast.

To burn stick brimstone with only the aid of a match, take a board about 7 in. square and nail on a rim ⅞ all around, so as to make a sort of shallow dish. Now set it on fire on the dish side. This can be done with kerosene. After it has burned some time, so as to char it, the fire must be put out. Lay away till cold. The dish is now ready. Take common stick brimstone and break it into pieces about the size of walnuts. Brush some of the small fine pieces to the middle. Take a piece in the hand. Hold it near the dish over the small fine pieces. Take a match and strike a light, holding it under the piece you have in your hand. The sulphur will melt and drop on to the pile of small pieces of brimstone, and will be alight. Build the larger pieces of brimstone around this so the heat will melt them. The brimstone will all burn up. The board will last for several burnings. I used one an entire season, and have it yet. Set the board, of course, inside of a pan or kettle. Try this if you have any brimstone.

F. A. SALISBURY.

Syracuse, N. Y., Feb. 18.

[The name shows that sulphur is one of the elements. When I said I had not detected the peculiar penetrating odor that is so painful, I had reference to the fumes that arise from it by natural evaporation when no heat is applied. Yes, I believe it would run an explosion motor, without any doubt, and would be much more powerful than gasoline. Yes, the brimstone would be cheaper, and certainly safer.—ED.]

HONEY FROM AN OPIUM-PLANT; WOULD IT BE POISONOUS?

As a beginner I branched out last year in bee culture. I all at once realized there were not enough of the wild or natural honey-producing plants to support more than 30 or 40 colonies to advantage. Having increased the number to 100 colonies I got almost no honey. By chance I had a small square of poppy-plants in my yard. I found the bees would gather around the blossoms in very large numbers. It seems to yield quite a lot of nectar, and they work on it for about three hours in the early morning, so I gathered enough seed to sow one acre this season. It being an opium-plant I was afraid to plant it until I could write to some one as to whether the honey gathered from these plants is poison or not. I wrote to our State Entomologist, and he refers me to you. J. A. LEONARD.

Albany, Ga., April 16.

[I am not prepared to say whether the honey would take on the peculiar poisonous properties of the plant or not; but I know this, that it is a common thing to put stands of bees near large fields of seed onions. When the honey is first gathered it has a very strong onion flavor, and nobody would buy it; but after it is fully ripened the bad flavor has all disappeared. There are quite a number of other plants that yield honey of a peculiar flavor—that is, if it is extracted before it is sealed over. If the bees are allowed to ripen it and cap it over, all this bad taste or smell disappears. I would caution you, however, not to expect very much honey from only one acre of plants. It may do very well for an experiment, but I am sure it will not pay cost. If I am correct, there is no honey-plant known that will pay to grow for honey alone. A good many times certain persons have thought they had got hold of such a plant—catnip for instance; but it has proved to be a mistake. But such plants as catnip, that will grow without cultivation or care, would be more likely to pay; but any piece of ground that would grow profitable honey-plants would grow grass or grain; and the quantity you would secure is so small it would hardly compare in value with the grass or grain. I should be very glad to hear the result of your experiment if you go on with it.—A. I. R.]

ROLL HONEY.

I discard the name "bag honey," and adopt "roll honey," just the same as we speak of a "roll of butter." I am eagerly watching your column on roll honey. For this wet climate I think the freezing has got to be brought into use. In this locality you could not sell a 10-lb. bag—1 lb., and 1 lb. only, will have to be the ticket. When peeled, and placed on a dish, it is indeed "a tempting dish." But I have yet to master the granulated question before I can succeed.

FAIRY SHELLS.

At our flower show we took a tin of granulated honey and ice-cream biscuit chips. These we filled with less than 1 oz. of honey, and just put a label on. The honey held it down. One cent each as fast as you please.

Long Eaton, Eng. J. GRAY.

FRAMES SUPPORTED ON NAILS.

On pages 1043, '4, you ask about frames supported by nails. For more than 14 years the supports of all frames in my apiary of 70 hives are eight-penny nails of No. 8 wire finishing nails. I tried at first 6's, but found them too slender; No. 7 or 8 wire driven in the end of the bar ¼ inch below the upper surface, head within ⅙ or ⅛ inch of the hive; you can shove all from side to side with one finger. No need of staples. I use your frames, but saw the ends off and remove the staples. JAMES CORMAC.

Des Moines, Ia.

THE RELATIVE WINTER TEMPERATURE OF COLORADO AND WISCONSIN.

I see in your issue for Apr. 1 you say (in commenting on how bees have wintered) that it is as cold or colder in Idaho and Colorado than it is in the lake region. I think you surely have got a wrong impression in this matter. I will admit that I do not know much about the climate of Idaho, but I do know they ship each year more peaches, pears, prunes, and apricots from Idaho than were ever raised in Wisconsin. This could not be if it were colder than Wisconsin.

With regard to Colorado, I feel sure that the mercury has been below zero more times during the past winter in Wisconsin and Michigan than it has in the western and southern parts of Colorado during the past ten years, where it seldom goes below zero.

It is somewhat colder in Northern Colorado; but at this point, 40 miles north of Denver, the coldest the past winter was 2 above zero, and that on only two occasions; besides, the sun shone almost continuously all winter, and bees flew perhaps twenty days each out of the three coldest months.

Our climate is warmer in winter and cooler in summer, so there is only two to four degrees difference between Chicago and Denver (this is mean temperature for the whole year); but the difference in humidity makes Denver much the better climate.

I think you pointed out the true cause in winter loss when you spoke of the dampness having a worse effect upon the bee than the low temperature.

Here I have seen bees carrying pollen and honey at 47° of temperature, while in Wisconsin or Michigan they will scarcely fly at less than 52 above. M. A. GILL.

Longmont, Col.

[When I was in Colorado one late fall the temperature went below zero several times. Notwithstanding it did so I did not *feel* the cold. In the item to which you refer I may have been misinformed as to the actual cold in the State; but the fact I was trying to emphasize was that it might be actually colder in Colorado or Idaho than in the lake regions hereabout; but if that temperature was a *dry* cold the bees would not begin to suffer as much; that *humidity* plus cold was what kills the bees.—ED.]

FROM 34 TO 50, AND 5000 LBS. HONEY.

Last spring we had 34 colonies of bees in eight frame L. hives; we increased to 50 colonies, and took 5000 lbs. of first-class extracted honey from clover and basswood. This is an average of about 147 lbs. per hive. We fed about 200 lbs. of sugar in the fall. There was more than 50,000 lbs. of honey taken within five miles of us. I run a sawmill and planer, and make my own hives, and supply some of my neighboring bee-keepers too.

Extracted honey sold here at 6 to 7 cents per lb. wholesale, and retailed at 9 to 10.

We enjoy your Home papers very much, and feel sure you would enjoy a run on your automobile through this part of Ontario, and we should feel highly honored by a visit from A. I. Root this coming summer.

Falkirk, Ont. W. H. WESTCOTT.

THE BARBER METHOD OF WINTERING.

I live only 38 miles from Ira Barber, and am very much interested in the perfect wintering of bees. I am not satisfied with my wintering. I have too many dead bees. I think you are able to help very many bee-keepers, and see you realize the importance of this subject; and if you could only see bees wintered with no ventilation as well as bees wintered with that very large ventilator you have, and Bingham's cistern cellar with large ventilator, you will be able to draw conclusions that may be of no small value. Mr. Barber's idea of no fresh air, regardless of the usual rise in temperature in closed cellars in the latter part of winter, seems to be at variance with most bee-keepers; still, he may be right. It seems to me there is some reason why his bees are quiet when the temperature rises at the top of his bee cellar to 56, as my cellar now is. He speaks about bees coming out of the fly-hole when it gets too warm to stay inside, then back again when it is cooler. Does this fly-hole he puts in his hives account for his success? The warmest part of the hive is above the bottom, so they could get rid of foul air easier through the fly-hole, perhaps. If the foul air could escape so easily without losing necessary heat, might not the bees remain in better condition in a warm cellar? There is 12 degrees' difference in the temperature of my bee cellar today. One end is 1½ ft. lower than the other; and 1½ ft. from the bottom of this it is 12 degrees lower than at the top of the other end. The higher end or part has many more dead bees than the other, which has very few. I hope you can see some bee-cellars in Mr. Barber's neighborhood this spring before the bees are set out.

F. C. HUTCHINS.

Massena Springs, N. Y., Feb. 15.

[My articles on cellar wintering in May 1st issue may help you to solve some of the conflicting ideas. I judge Mr. Barber's cellar does not go below 40. If it did he would have trouble if the temperature kept down for weeks at a time.—ED.]

NEW FUEL FOR SMOKERS.

Some of the Cuban bee-keepers have made the discovery of an excellent and very cheap fuel for smokers in these climates; namely, the dried-up and old leaves of the bannan-plant, which, when used in the smoker, make a very pungent and thick smoke which the bees do not like at all, and it has the effect of subduing the very crossest bees with a few puffs. As a good many of the yards are placed here in the shade of the bannans, it is a constant and never-failing supply of good material, and always at hand. L. MACLEAN DE BEERS.

Havana, Cuba, April 20.

A GLIMPSE OF THE WILD RASPBERRY AS IT IS SEEN OVER THOUSANDS OF ACRES IN NORTHERN MICHIGAN, WHERE THE PINE TIMBER HAS BEEN REMOVED AND THE GROUND LEFT VACANT.

TO GET RID OF ANTS.

I should like to ask what will drive away ants from hives. I have a few hives that are bothered some with them.

Stuttgart, Ark. Earl Rhodes.

[The most satisfactory way to get rid of ants is to hunt up the nests, make holes in them with a crowbar, and drop into each hole so made about a tablespoonful of bisulphide of carbon. Cover the holes up immediately with plugs of earth. The gas arising will penetrate all the galleries of the nests, and destroy the ants. You can buy the bisulphide of carbon at the drugstore. But bear in mind it is very explosive, and must be kept away from a lighted flame or a stove. Enough gas can be generated to blow up a house, and I would advise you to keep it in some outbuilding where it will do no particular damage. By hunting up the ant-hills and destroying the nests as described, you will, to a great extent, mitigate the nuisance.—Ed.]

A TWO-YEAR-OLD CHILD STUNG TO DEATH.

The two-year-old son of Mr. and Mrs. F. W. Metcalf, of Arcadia, Ore., was stung some forty or fifty times by bees, and died in less than 30 minutes from the effects. Now, is there any thing one can do in such a case as this? The child disturbed the hive with a switch, as he had one in his hand when found near the bees unconscious. The child was heard to scream, and a man went to him at once. This happened half a mile from our bee-ranch at Arcadia.

Ontario, Ore. Pennington Bros.

[Cases of this kind are exceedingly rare; and even where death does occur, the subject is usually more susceptible to the effects of the poison than the average person. I believe this child could have been saved if cloths wrung out of water as hot as could be borne had been wrapped around it and renewed every minute or two. Even cold applications seem to bring relief.—Ed.]

PREVENTING AFTER-SWARMS.

Last year I had several after-swarms, and I want to prevent after-swarming if there is a way to do it. Is it all right to let bees swarm one time? The idea I have is this: When the first swarm comes out, open the hive that the swarm came out of, and cut out all the queen-cells but one.

Ephesus, N. C. S. S. Foster.

[The plan of cutting out all the queen-cells but one has been practiced to a considerable extent to prevent after-swarms, and in the majority of cases it works very well; but it sometimes fails, nevertheless. It is usually better to move the parent hive on to another stand at the time the swarm comes out, hiving the swarm in another hive with frames of foundation put in the old location.—Ed.]

TROUT-BROOK SCENE NEAR RAPID CITY, KALKASKA CO., MICH.

NOTES OF TRAVEL

BY A. I. ROOT.

WILD RASPBERRY OF NORTHERN MICHIGAN AS A HONEY-PLANT.

At the recent convention in Traverse City (see page 389, April 15) there was quite a little discussion in regard to raspberry honey and the location of apiaries in that region. I have mentioned the wild raspberry around our cabin in the woods, in Leelanau Co., Michigan. When the berries are ripe, crowds of people go out from Traverse City for miles to gather the luscious fruit; and when it is dead ripe in localities where none has been picked (and there are acres and acres of such), as you go along through the bushes the plump luscious berries dropping on the leaves underneath make a continuous rattle. The fruit season lasts so long that delicious berries may be gathered from the time they first ripen in July clear on till October, but, of course, not so plentifully as cold weather approaches. The blossoms commence yielding honey in June, and there is more or less bloom from that on till frost. The quality of the honey I should pronounce equal to any thing we have in the market. It is near the quality of white clover, candies solid at the approach of cold weather, so it will be exactly right for selling in paper bags or for cutting up into squares. Large bee-keepers are now planning for out apiaries where these red raspberries most abound. I believe there is very seldom a failure in the honey crop; and as much of the land seems to be of but little value for any thing else where the native pine timber has been removed for lumber, there is a probability that this source of honey will last for many years to come. As this region is a favorite resort for summer outing, I think it is well worth while to make an excursion in that direction during the summer months. If the beautiful air among the hills and bays and springs and rivers does not recruit your health, a diet of raspberries and bread and butter will do it. I ate them week after week, not only at meals, but all through the day when tired and thirsty; and instead of doing harm they just made me well and strong.

A GLIMPSE OF ONE OF THE TROUT-BROOKS IN NORTHERN MICHIGAN.

The picture was given me at the Traverse City bee-keepers' convention. I have thought best to give it here as it shows something of the beauty of the spring-water brooks that are found all over Northern Michigan. The picture also gives us some idea of the water power going to waste. There are enough of these brooks with a magnificent fall to run electric cars all over that region, and to light all the cities and villages besides. These brooks are all clear spring water, and are never-failing; therefore they would be unlike many of the water powers further south that run a full volume only during the springtime or when there are heavy rains. No one can describe adequately the crystal clearness of these brooks. I have before mentioned that, along the dock near the bay, close to our northern home, fish can be plainly seen in water that is 16 feet deep; and these brooks are clearer and purer than the water in the bay Just imagine how a lot of urchins would enjoy playing around a place like that on a hot July day! I should think they would be doffing their clothes and getting under the sprays. Perhaps that is what they have been doing, as they are a remarkably clean set of boys. Between two of them you can see a sample of some of the beautiful evergreens that grow spontaneously in that region. At the left-hand corner of the picture you will see another group of these evergreens. There is quite a variety of pine, spruce, and cedar, and these are usually interspersed with deciduous trees, making a very pretty contrast. These trout-brooks are to be found all around the region where wild raspberries grow.

Now, it is getting away from my subject; but while you take a look at these boys, and consider the harmless amusement of picking wild raspberries, drinking to their fill from the brooks of the soft-water springs, taking a bath when they feel like it under the waterfalls, then think of the saloon-keeper who takes young boys — boys who, in the absence of these saloon-keepers, might grow up to be good and pure—think of the saloon-keeper who leads them into obscenity, filth, and ruin, just because he can thereby get a little money out of it! Here in Ohio we have just had a fierce fight for the privilege of letting the fathers and mothers decide whether they want these places of iniquity around the towns and villages, and in the residence portions of our cities or not. We temperance people simply asked that the *majority* might rule. The saloon keepers and brewers hotly declare, "No, sir, the majority *shall not* rule so long as it interferes with *our* business." And the Governor of the beautiful State of Ohio stood by the brewers, and helped them to a partial victory. But we have not done with him yet.

There, there is one thing in that picture I never noticed until I had come to the close. One of the boys has a fish-net in his hand, so they are going to have some beautiful fresh fish besides the raspberries, the spring water, the luxurious bathing, etc.

FOUNDATION OR EMPTY COMBS.

Is it advisable to hive swarms on combs that were built last year, or would you use only starters of foundation? I have plenty of combs in good condition.

Wirtz, Va. G. J. Blankenship.

[Use whatever you have, ordinarily. To prevent swarming, foundation is to be preferred.—Ed.]

OUR HOMES,

BY A. I. ROOT.

WHOM HE LOVETH HE CHASTENETH.

The writer of the letter below did not intend it for publication; in fact, he says so; but if I am correct he will not object, especially when I think it should be in print:

> *Dear Sir and Brother:*—I am glad to see by your last Home talk that some were stirred up to write to you about your sermon (?) in the preceding issue. I felt that I ought to also, but put it off till now. To begin with, there are a good many things that I admire in your talks, and I think you take correction and reproof in a good spirit, else I would not write this letter; but it seems a shame for a Christian to call sickness a blessing. You speak of being "forced" to give up your ways by failing health. What kind of submission is that? It seems to me a good deal like the man who was "blessed" by being sent to the penitentiary. Of course, it was a blessing; but what a shame to be sent that way! Don't you know that great big healthy men can have such a spirit of love that they can be gentle and kind all the time, and meek? also "clothed with humility"? They are rare, I sadly confess; but Jesus said, "Few there be that find it." Oh the sad state of the world, when to love Jesus seems incompatible with strong sturdy health of body and mind! Had I "the pen of a ready writer" I would write a book on this.
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> Then it seems that in your talks there is so much of the spirit of A. I. R. and so little of the spirit of Jesus. I don't want to bear on too hard; but with what complacency you speak of eminent doctors and trained nurses, etc., as if these were available to the great majority of mankind! I fear that, to most of them, they are as impossible as automobiles. I know some of your readers who are struggling hard for bread and butter and shoes for their children, who are away back where your father and mother were when you were a little child. I do wish you would tell your readers that God is a present help in trouble; that Jesus is always within call. It seems so sensible to commit our care to him first of all, and then do as he directs. "My sheep know my voice." But do you keep your own spiritual affairs "up to date"? In some way you give me the impression that your work for God is merely incidental or secondary; that your business is uppermost in your heart and mind, and that *that* comes first; that you think more of making money than of saving souls. I hope it is not so. Did you ever think what an awful thing it would be if you should miss heaven? May God grant you and your dear wife an abundant entrance into the kingdom. If I have seemed to be harsh, let me assure you that the worst wish I have for you is that the Lord will say of you, "This is one of my dear children in whom I am well pleased."
>
> I have not written this for publication; but I am sure these words will condemn me in the judgment if I fail to live soberly and righteously in this present evil world. I wish, were it God's will, that we might "speak with naked hearts together." I am not a Dowieite, but just a plain Christian; and about the only means of grace I have are the Bible and prayer.
>
> Yours in hope of attaining to the resurrection of the dead, W. S. GARDNER.
>
> Bellaire, Mich., April 25.

Many thanks for your opening sentence. May God help me to merit what you say about my taking reproof in a good spirit, etc. There may be those who feel they can speak with authority as Jesus spoke; but I am not one of that kind. Of course, there are different opinions about sickness being a blessing. Our pastor, in his sermon last Sunday, seemed to take ground that it is not God's will that we should be sick; but he agreed with me, but a few days before, that the *Sunday School Times* is about as orthodox, and about as good authority on difficult questions pertaining to the Bible, as any in our land. Why, my good friend G., I recall vividly one man who was not only blessed by being sent to prison, but through him the whole human family have received a blessing. I refer to John Bunyan. He probably would not have written what he did had he not been confined, and probably for something of which he was entirely innocent. It certainly was a shame that so good a man should be punished in that way; but thereby and through him God blessed the world. When I said that my plans in life were broken up by poor health I did not mean that I was at the time after the almighty dollar, and might have been there yet. When I spoke of expensive city doctors and trained nurses I did not mean to advise everybody to follow that fashion; in fact, I gave our experience in the matter at considerable length because I did not feel satisfied that expensive doctors and nurses are very much better than the ordinary family physician in the country, with a nurse not beyond the means of the day laborer. Mrs. Root insists even now (of course she does not *know* positively) that, in her opinion, she would have got along just as well with a Medina doctor and an ordinarily skillful nurse. Yes, she and I have talked the matter over a great many times, and she has even suggested she *might* have come through it all right with good care and *no* physician at all.

I suppose, friend G., there are thousands of people besides the Dowieites who claim that a physician does not help very much aside from deciding that the patient shall have a competent nurse, and that all well-accepted sanitary rules be observed. But this is a serious matter. Do you dare tell me, dear brother, that, if your wife and children were near to death, you would let them die without calling a physician? Mrs. Root objected vehemently to physicians and nurses both; but her children overruled her, and they would have overruled me also had I sided with her. Now, a grave question confronts us right here: Shall we let the dear wife or children die because we are too poor in this world's goods to employ a doctor? I think I can remember a few cases where good people have been allowed to die just because the relatives thought they could not *afford* a doctor. If we were really *sure* the doctor would save the patient, and that the patient would die without the doctor, we could mortgage our property, or go among our friends and beg on bended knees for the wherewith to save the life of the dear one.

There are a good many hard things said about our doctors; but, dear friends, let us all remember the doctor is the only man in the community who is expected to work day and night to save the lives of poor people, and that, too, without pay, providing they are unable to pay. Yes, he is even expected to furnish costly medicines when, in his opinion, it will save life; and I am sure there are hundreds of physicians who work as hard where there is no probability they will ever get a copper in payment, as for their wealthiest customers. Of course, this is within the bounds of reason. When a physician is told to spare no expense in the effort to save life, of course he orders many things he would not be expected to order under other circumstances. I am not only working but praying for wisdom in this very matter; and with all the light I can gather up, my opinion is that our safest course, as a rule, is to follow the advice of our family physician.

You are right, my good friend. I was born in a log house, and my parents were poor; but when the family doctor said there was very little chance of life when I was only two years old, my parents, poor as they were, called a counsel of two other neighboring physicians. One of these doctors said later that it was not their medicine that pulled me back from the grave so much as it was my mothers's prayers; so you see it would be the most natural thing in the world for *me* to believe in praying for the sick.

Dear friend, I have been trying to assure mankind that God *is* a present help in trouble; and I am trying hard to keep my spiritual affairs "up-to-date." So far as making money is concerned, I think I can say truthfully that I am not at present at work at any thing to make money. I am here in the factory a part of every day to give such counsel and assistance as I can give; but I have no employment on my hands for making money directly. Most of the time I keep busy by making suggestions and adjustments so that somebody's work will be easier than it has been heretofore. The thought is expressed beautifully in some kind words that came on a postal card, which I submit below:

My dear Sir:—GLEANINGS for April 1, the very last paragraph as to keeping machinery in repair—that's a *grand* word you have there: "I forget all about being tired; and then I do really enjoy helping the world along by repairing or making adjustments, so that *somebody's* work is easier than it has been heretofore." *Amen*, friend Root. I almost think the whole duty of man is summed up there. Do you remember that other grand word of that grand world's man, Carlyle? "There is in man a higher than love of happiness; he can do without happiness, and instead thereof *find blessedness*." The revelation of my duty that comes to me often incites me to preaching publicly, and stirring up faith and righteous effort in others; and such duty, undertaken often in a woeful sense of weakness and even utter collapse, does bring its due reward of contentment and blessedness; but far more of my life this past twenty years has been spent (outside of the struggle to provide things honest for daily existence) in that same work of repairs and adjustments for others. It is often thankless work; there is little glory attached to it, but there is great blessedness.

GEORGE ROSE.

The good brother who sends this card did not give his address; but by looking him up I find he is a nurseryman and florist as well as a bee-keeper, at No. 50 Great Charlotte St., Liverpool, England. I wonder if all florists are good men. They certainly *ought* to be.

In regard to missing heaven, I hope you will not think I am insincere when I say that I have not been concerned so much of late years about missing heaven *myself* as I have for fear that some others whom I have tried to lead from earth to heaven should finally miss that goal. I do not think your letter harsh nor unkind at all; and I thank you for the great compliment you pay me in your concluding words. May God lead us both into all truth.

And now I want to submit a letter from another brother. We may not be able to indorse all he says; but nevertheless he gives us some valuable suggestions — suggestions that I think are in line with the present trend of this matter of the prevention and cure of disease:

A WORD ABOUT HEALTH.

God talked with Moses in an audible voice as one man talks to another. He gave some health talks. I do not eat any of those things he forbade. I think he knew what is healthy. For me to eat what is unhealthy is to insult God. Statistics tell us that of every 1000 gentiles born, one-half will die before 40 years of age. Of 1000 Jews born, one-half will live to be 71 years of age. Our drug doctors *try* to *cure*, but do very little to prevent people from getting sick. Our God is not so short-sighted as to write a book telling how to cure. He writes directions how to live so that this sickness will be unknown. A. I. R., we are a stiffnecked lot. When one is started in life wrong it is hard work to get him wholly right at once. Olive oil is one of the best remedies known It is now a fad with doctors to cut for appendicitis. Those who do not cut out the appendix, but have the patient fast, using a pint or more of olive oil internally and externally, with proper hot and cold water remedies, cure more of their patients than those who cut them open.

Constipation is dangerous, because it poisons the whole system. I know, for I have been there. I have used a syringe and water, but have no use or need of the syringe now. How can one cure himself? Well, listen. I know a person, now 37 years old, who was born constipated. He had to use a syringe and water for years. He got so constipated that the best drug doctors of Los Angeles gave him up. They did all they could with drugs, and at this stage he was about to drop into the grave. Another doctor took his case who uses "suggestion" as a means of cure, together with massage, water, breathing, etc. Well, he cured him. He had to turn over a new leaf in the first place, and eat proper food Then one must use his *mind* or *will*, or, as this doctor calls it, "suggestion," or as *I* would call it, pray that your bowels might move, and try to move them as you might try to move your hand or foot. It is the right thing to ask God to help you, for "in him you live and move." This doctor worked, I might say pounded, his liver till he could feel and hear the bile slop about. He says "suggestion" is the foundation of "Christian science," but he teaches how to keep well after you are cured. In either case you must have some "faith."

Now you know. Bro. Root, if you are posted, that thousands of our Catholic brethren, by making a pilgrimage to some shrine to bathe, or touch the bones of some dead saint, are cured of their disease. It is "faith" that does the cure Electropoise, oxydonor, etc., are worthless, but faith is a valuable asset.

I can not see any science in "Christian science;" but I believe in prayer; and that the prayer of any one, together with faith, will cure many cases, no matter whether the person is a Catholic, a Christian Scientist, a Theosophist, or a *Congregationalist*. Those who use suggestion as a cure admit it to be a prayer, even though not begun nor closed in the orthordox fashion. Alexander Dowie is far from being infallible. He is human The world hates him because he is so rough, and hacks into its weak and sore spots so as to hurt. His prayers, and faith on the part of the ones prayed for, effect cures.

There are many strange things we do not understand. Many of our ablest scientists *now* "admit that a thought is something that can be weighed and measured," and it can travel fast without any wires. It can be sent to God. You pray for your friend or child who is far distant, and it is sure to go where sent.

By a little practice you can move a light line with a plumb, if it hangs near, by just concentrating your mind on it—make it swing east and west, or north and south, or in a circle. W. E. LITTLE.

Perris, Cal.

Dear brother, I hope you are right, and that appendicitis can be prevented. But let me give you a little of our experience. Our boy Huber, now almost 21, while attending school was subject to strange attacks that sometimes laid him up for several days. He consulted physicians of different schools, and the final decision all around seemed to be it was appendicitis, and that he would have to submit to an operation. The attacks were becoming more frequent and more severe until he had one that made us despair of his life. Our family physician said if Huber recovered from that, just as soon as he was well and strong he should go to Cleveland and have an operation performed — that another attack, in fact, might cost him his life. Before doing this we consulted the best physicians in the great city of Cleveland. There seemed to be a general agreement. The operation was successful; and then came before me an important point: If all these doctors were right, the peculiar symptoms of his trouble would be entirely at an end. Almost two years have passed, and he has never felt the least symptom of any thing of the kind. I think I have read in the papers that about 90 per cent of the operations for appendicitis, when taken in time, are successful. Of course, there are many, and some physicians among them, who have some other remedy, and who say hard things about the doctors who advise an operation. So there are people and even physicians who object to vaccination. I am greatly interested in what you say about "suggestion," and I am satisfied a great field for alleviating human suffering is just now opening up, right along in this line; but I am not prepared to go as far as you do in your closing sentence about mind operating directly on matter. I know this statement has been in the papers and in some books; but I am ready to give $100 for the man who can move a plumbline as you describe, by the mere effort of his will. I should want to put up the apparatus, however, and have the experiment performed on my own premises. Influencing one's digestive apparatus by the power of his will is a different thing from causing an inanimate object to move by that same will. Perhaps we are getting a little off from the line of our text; but notwithstanding all that has been said in the above, I for one am convinced that God often shows his wondrous love by sending us some aches and pains that seem very hard to bear. A good parent reproves, corrects, and even makes his child suffer pain, of some sort, because he loves him *so much*, and *not* because he does not love him *enough*.

Temperance.

"UNCLE SAM SAYS IT IS ALL RIGHT."

Somebody has sent us a clipping of an advertisement from a home paper called the *Home* (?) *Queen*. Here it is:

> UNCLE SAM SAYS IT IS ALL RIGHT.
>
> Uncle Sam, in the person of ten of his government officials, is always in charge of every department of our distillery. During the entire process of distillation, after the whisky is stored in barrels in our warehouses during the seven years it remains there, from the very grain we buy to the whisky you get, Uncle Sam is constantly on the watch. We dare not take a gallon of our own whisky from our own warehouse unless he says it s all right. And when he does say so, that whisky goes direct to you, with all its original strength, richness, and flavor, carrying a United States Registered Distiller's Guarantee of Purity and Age, and saving the dealers' enormous profits. That's why our whisky is the best for medicinal purposes. That's why it is preferred for other uses. That's why we have over half a million satisfied customers. That's why you should try it. Your money back if you're not satisfied.

Now, I am not politician enough to say whether the above is all exactly true or not; but if it is true, Uncle Samuel is for once in his life not with the majority of his people; and, God helping us, he will sooner or later be straightened up. The Governor of Ohio is in the toils already for having favored the liquor interests rather than the voice and *thundering protests* of the people of this State. He has frankly admitted that he does not think it right and fair that the majority of voters should rule. If Uncle Samuel is in the same boat we want him to get out of it quick.

HIGH PRESSURE
GARDENING
BY
A. I. ROOT.

A CLOTH-COVERED LEAN-TO GREENHOUSE.

The little greenhouse I wrote about in our last issue became so crowded with plants the latter part of April I was obliged to build an annex for some of the hardy plants that would be almost sure to die if put directly outdoors. The annex is very much like the lean-to already described, but made of cheap materials, and covered with cloth instead of glass. In fact, the whole top is cloth stretched on a wooden frame. This frame is hinged up close to the walls of the building, so that it can be raised up vertically and hooked against the wall, leaving the plants exposed to both sun and rain whenever the weather will permit or as deemed advisable. Now, such a structure as this is a splendid arrangement to harden off a great variety of plants before putting them directly in the open air. First, it makes quite a protection when there are cold nights. The cloth cover I found sufficient to keep off a considerable frost; then whenever the sun is too hot for plants just put out, or just received from a distance, the cloth makes a splendid shade. You can drop it in a minute when too hot, and raise it up as soon as the sun comes out again. One thing more: Even during the summer months we often have storms of wind and rain that do a lot of damage to both foliage and flowers of many beautiful plants. I have seen a coleus-bed that cost a lot of money almost ruined by a driving storm, of wind and rain. Now, this bed or little inclosure can be protected perfectly in an instant from things of this sort; and whenever there is more rain than is really good for the plants, the cloth cover will keep off the greater part of it.

For the market-gardener and lettuce-grower this cloth-covered bed or lean-to affords an easy means of growing most beautiful white crisp lettuce right through the months of July and August. Of course, we can do the same thing with the cloth rolled up on a pole as described in the tomato-book; but this arrangement does not shed rain like our heavy sheeting drawn tight on a frame. It sheds rain much better because there is considerable slant to the roof. Perhaps I should have said in the first place a single window opens from the basement of that big cellar right into this cloth-covered structure. This equalizes the air so it is not apt to be too hot nor too cold when the cloth is let down. The whole thing is made of refuse pine strips, planed on both sides, of course, but just as the buzz-saw left it on the edges. By the use of a little sandpaper these strips could be painted. It is all made of one-inch lumber.

And, by the way, there are many plants besides lettuce that do ever so much better with a little shade from the fierce sun during the middle of the day. When there is a very hot dry spell even strawberries are greatly improved by shade cloth during the hottest hours. Two years ago our experiment station at Wooster, O., had quite a variety of plants kept permanently under a structure covered top and sides with cheesecloth. During a severe drouth, when every thing was suffering outside, this cheesecloth protection not only cut off the fierce rays of the sun, but the air was quite a little damper inside than out. The contrast in the looks of a great variety of plants with the same things outside was just wonderful. Of course, when we have cloudy days and plenty of rain, there is no need of any thing of this sort; but where one has plants that are worth a great deal of money I think such protection can be made to pay a big interest on the amount invested.

HOW TO MANAGE SO THE PLANTS YOU BUY WILL NOT DIE.

Somebody told me that one of the largest nurserymen in the United States once made the statement that not one tree in five sent out from the nurseries ever bore any fruit. Now, may be I have made a mistake in the figures. It may have been only one in *ten* that lived. But this is one thing that keeps up the nursery business throughout the United States and the rest of the world. People get in a craze for beautifying their homes, and buy trees, plants, shrubs, and flowers. These all die; then the following year, when spring comes, they get the fever again, and buy some more. Perhaps this time they get a few of them to live; but it is only after a long experience that they learn to manage stuff of this kind so it does any good. Another class of well-to-do people make out their order for a lot of stuff, and when it comes they hire Tom, Dick, and Harry to set it out. Now, if the above Tom, Dick, and Harry do not know how to do such work properly, and their employer does not know any better, no wonder the money is wasted. If you have not had experience in this line of work, you have seen neighbors who buy stuff recklessly—yes, foolishly—and let it die. Last Saturday I saw a lot of stuff shipped in from some nursery, standing right out in the hot sun in front of our electric-car depot. Sunday, in going to church I saw the stuff still there in the sun. Monday afternoon it was there in the sun still. I might have asked the agent if he could not put it somewhere in the shade; but I am afraid he would think I was meddling.

Now, one great trouble why the stuff you buy from the beautiful catalogs never does any good is that the shock in moving from the nurseryman's grounds, or, worse still, from the florist's greenhouse, is too great when put out in the sun in the average home garden or front yard. The florist or nurseryman can set the things out himself, and make them live; and in the cities well-to-do people often employ a florist to make a nice bed and put out the plants, especially the ornamental foliage plants. If he does not make a nice bed, and have the stuff live, he does not get any pay. This is a very good plan, but he generally gets pretty *big* pay when he makes a bed that is really a success. Let me now digress long enough to tell a story, and I think you will see where my moral comes in.

When I was in Columbus a few days ago in reference to temperance legislation, etc., I found out in the afternoon about half-past three that I would not be needed any more for that day, nor till about ten A. M. the next. Just as soon as I could catch a train I went down to Xenia, Greene Co., to see my eldest sister; but I stayed there only a couple of hours. From Xenia I took the electric line to Springfield, O. I had been getting some very pretty plants from a greenhouse there, for a very small sum of money; and I was very anxious to see the establishment where they could grow rare and valuable plants for a few cents, that used to cost almost as many nickels. I asked at the hotel how soon I could have breakfast. They thought six o'clock was early enough for anybody. Not so for A. I. R. *when he is in quest of greenhouses.* It was light enough so I could see at half-past four. A little after five I had finished my breakfast at one of the "open-all-night" restaurants; and almost before anybody was stirring I was two miles out of the city at the establishment of Messrs. Good & Reese. Just as the sun was coming up I was going through the hot-beds and cold-frames. Then I managed to get into the greenhouses, and I can hardly tell you what a happy time I had for three or four hours. This is said to be the largest establishment in the world for growing roses; and recently they have commenced growing all sorts of flowering plants for indoors and outdoors for decorating homes. The greater part of all of these plants—geraniums, pelargoniums, fuchsias, etc., sell at a nickel each or 50 cents a dozen. All of these plants, roses included, are grown in 2 or 2½ inch pots. Just as soon as the roots fill the pots pretty well, and begin to crowd, the plant is turned over to the customer. Soil enough adheres firmly to the little plant to enable it to go quite a long distance by express, and come to hand in perfect order. In fact, I had been getting from this firm beautiful roses in bud and bloom for only 50 cents a dozen. They came more than a hundred miles in such perfect order that the blossoms opened out perfectly, some of them the first day after they were received. Well, this firm not only furnishes all kinds of house-plants grown in pots, but of late they have been putting up a great variety of hardy shrubs for the dooryard in the same way. Of course, the plants are small; but a little plant, right out of the pot, dirt and all, will very soon make a big one.

Now, my visit was prompted largely by a desire to see how it is possible for them to grow plants for a nickel each, that we have heretofore had to pay 20, 30, and even 40 cents for. In just a little time I caught on to the secret. Like other kinds of business in this present age, they do things cheaply by growing the stuff in enormous quantities. Just one illustration. In one of the long greenhouses I saw fuchsias perhaps two feet high, growing so close together that the branches were like heads of grain in a field. The tops of these plants were clipped off, something as we cut off stuff with a sickle. They were loaded in wheelbarrows, and taken to a cool damp room, where men and boys clipped them up into little cuttings. Then some boys, not over 12, put these cuttings in a bed. The bed was covered with clean sharp sand, damp enough to handle nicely. It was leveled off, and then pounded with a square piece of plank with a handle in the center. A boy gave the level surface of the sand quite a hard blow with this leveler. When the bed was level, hard, and firm, another boy laid down a common lath and drew a caseknife each side of it. With a sprinkler the sand was kept dampened to just about the proper consistency. Then a third boy took these same fuchsia cuttings and pushed them down into the sand where the slit was made with the caseknife. The speed with which he handled these little cuttings made me think of the printers in our composing-room. He put them in so fast you could hardly tell what he was doing. In this way they filled beds hundreds of feet long. In about a week or ten days, with the temperature and moisture in the atmosphere kept just right, and the proper shade, these cuttings will have made roots ¼ inch long, or a little more. They then are put into 2 or 2½ inch pots with potting-soil; and when the plant has made several leaves, and filled its little pot with roots so as to hold the ball of earth from crumbling or dropping off, it is ready to ship. What I have described of the fuchsia is done, with proper variations, according to the nature of the plants, with almost every thing else; and where they produce these plants by the thousands and tens of thousands, it is not at all strange that they can sell them at a profit at four or five cents each. I did not see any of the proprietors. It was probably too early for them to be around; but I was told by the men in charge I could go all over the establishment wherever I chose, and I tell you I appreciated the liberty. There were beds of the most brilliant colei, so long that the colors could just be distinguished in the dim distance. A part of the houses are old; but this enterprising firm is building new ones almost all the time; and it was interesting to note the improvements made from year to year in greenhouse-building. Their houses are all of even span, running north and south. It would take too much space to tell you even the names of the plants. Almost every thing is shipped in 2 or 2½ inch pots; but, of course, they have 3 and 4 inch pots for certain customers who prefer to pay more for larger ones. One great advantage of the small pots is the saving of express charges in shipping; and any one who has a few pots and a little skill can make a two-inch plant into a four-inch one in a very short time. The fun of seeing the little bits of things grow into big shapely plants is, to my notion, one of the most interesting things about plant-growing. I believe it is getting to be quite fashionable lately to send out a great variety of ornamental trees, including the high-priced evergreens, with a ball of earth around the roots. Two years ago I was greatly taken up with some blood-red Japanese maples. I paid several dollars for half a dozen of them. They all died, although the florist told me they were perfectly hardy, and would grow as well outdoors as any of the maples. I gave it up in disgust; but now I shall have some little ones grown in pots; and if they are hardy for anybody, *I* shall make them grow.

Since I made that visit I have asked the firm to give me some figures pertaining to their establishment—amount of business, etc. I submit the statement below:

> Our greenhouse covers an area of five acres. We grow about four million rose-plants each year, and about the same number of miscellaneous stock of all kinds, such as chrysanthemums, carnations, fuchsias, hibiscus, palms, ferns, begonias, etc. Our business amounts to upward of a quarter of a million dollars a year; and, though we keep adding to our greenhouses each year, we have as yet been unable to supply all the orders that come to us each season. We are now getting more business than we can handle. We ship to every country on the globe, including the islands of the Pacific. The Good & Reese Co.

It may be that I am giving this firm some free advertising; but I think they deserve it, for, if I am correct, they are pioneers in furnishing the world beautiful little plants of almost every thing for only a nickel.

CONCLUDED IN OUR NEXT.

Walter S. Pouder. Established 1889.

Bee-keepers' Supplies.

Distributor of Root's Goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Co., and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee Smokers, Bee-veils, Pouder Honey-jars,

.........and, in fact, everything used by Bee-keepers........

Headquarters for the Danzenbaker Hive.

ITALIAN QUEEN BEES and NUCLEI. Strictly high grade, and a pleased Customer every time.

My Stock of Supplies

is fresh from the factory, and fully up-to-date in every detail. My sections are not dried out, and they they do not break in bending.

What They Say.

South Bend, Ind.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—The queen purchased of you is a dandy. I have just examined her hive to-day, and find it full of brood and young bees. The "Hoosier Strain," I think, will do to tie to.

Yours truly,

W. D. BALL.

Glen Haven, Wis.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—The supplies sent me have arrived in good condition and the quality is very choice. I must confess that it has been a pleasure to transact business with you. Please accept thanks for your promptness and fine goods.

Truly yours,

E. J. HEMPLE.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package.

My large illustrated catalog is free, and I shall be glad to send it to you.

WALTER S. POUDER,

513-515 Massachusetts Ave., - INDIANAPOLIS, IND.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin=the=Queen=Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long=tongued Red=Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

We have files of unsolicited testimonials, but space forbids giving any here.

We employ 400 swarms in queen-rearing, the business is a specialty with us. We expect to keep 600 to 1200 queens on hand. Parkertown, O., was our postoffice, but we have changed to Bellevue which has 13 mails each way daily. (No more of our queens will be jerked from a crane.) Our new circular now ready to mail.

Queens now Ready to go by Return Mail.

ADDRESS ALL ORDERS TO

Price of Queens Before July First.

	1	6	12
Select	$1 00	$5 00	$9 00
Tested	1 50	8 00	15 00
Select Tested	2 00	10 00	18 00
Breeders	4 00		
Straight Five-band Breeders	6 00		
Palestine Queens	2 00	10 00	18 00
Two-comb Nuclei, no queen..	2 50	14 00	25 10
Full Colony on eight frames..	6 00	30 00	
Four fr's brood, 4 fr's fdn....	5 00	25 00	

Special low price on Queens and Nuclei in 50 and 100 Lots.

Quirin=the=Queen=Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200 Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1.50; select tested $2.50; breeders $4.00 to $7.00.
Illustrated price list free for the asking.

W. O. VICTOR,
Queen Specialist. **Wharton, Tex.**

Choice Queens for 1904.

We are again offering queens of the best stock obtainable. All breeding-queens are selected, first, for superior honey production, and pleased customers are constantly sending in reports like the following:

Georgiana, Fla., Jan. 29, 1904.
The untested queen I got of you last March was a dandy. I raised about all my queens from her, and they are all far ahead of the common run.
LELAND BALDWIN.

Toronto Can., April 8, 1903.
I am well pleased with your stock, my ordering again is proof of their qualities. They proved gentle and were good workers. Hoping that you can fill my order, I am yours truly, THOS. AIKINS.

Untested queens of Golden or Leather colored Italians, delivered in good order at your postoffice, 75c each; $7.50 per doz.; tested, $1.00 each; $10 per doz.

GEORGE J. VANDE VORD, Daytona, Fla.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. Laws, Beeville, Texas.

---HONEY QUEENS---

Golden and Leather-colored Italians, tested, $1.25; untested, $1.00.

H. C. TRIESCH, Jr., DYER, ARK.

CARNIOLANS AND ITALIANS.

Untested Queen $1.00; Six for $5.00; Twelve for $9.00. Tested $1.50. Best Breeder $3.00. Imported $5.00.

Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

F. A. LOCKHART & CO.,
Lake George, - New York.

Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years. We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness.*

Italians.

Gentle, prolific, swarm very little, hustlers to work, and a red-clover strain.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

QUEENS ! ATTENTION ! QUEENS !

During 1904 we will raise and offer you our best queens. Untested, 75 c. each; $4.25 for 6; $8 00 for 12. Tested queens, $1.50 each; best breeders, $5 00 each. One, two, and three frame nuclei a specialty. Full colonies, and bees by the carload. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18, Beeville, Texas.**

OUR SPECIALTIES

Cary Simplicity Hives and Supers, Root and Danz. Hive and Supers, Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season. 32-page Catalog Free

W. W. CARY & SON, Lyonsville, Mass.

Doolittle Says:

"Be very choice of this Breeder; if ever a Queen was worth $100, she is." Then we have Breeders from our strain that gave the big yields in '94, and which some of the largest bee-keepers in Cuba say can't be beat. They swarm but little and are **honey-getters.** We are breeding for **honey-gatherers** more than color. We cull our cells and queens, and **warrant** queens purely mated. Prices: Select untested, $1.00; select, $1.25, tested, $1.50; select, $2 00; breeders, $3.00, $4 00, and $5 00. Circulars free.

J. B. CASE, Port Orange, Florida.

Tennessee Queens.

Daughters of select imported Italians, select long-tongue (Moore's), and select golden, bred 3¼ miles apart, and mated to select drones. No impure bees within three and but few within five miles. No disease; 31 years' experience. All mismated queens replaced free. Circular free. Safe arrival guaranteed.

John M. Davis, Spring Hill, Tenn.

	Price before July 1st.			After July 1st.		
	1	6	12	1	6	12
Untested	$ 75	4 00	7 50	$ 60	3 25	6 00
Select	1 00	5 00	9 00	75	4 25	8 00
Tested	1 50	8 00	15 00	1 25	6 50	12 00
Select tested	2 00	10 00	18 00	1 50	8 00	15 00

I have booked all the order that I can fill until June 1.--John M. Davis.

Leather Colored Italians For Sale!

Strain took first premium Minnesota State Fair, 1901 and 1902. Ready May 1st. Eight or nine frame Langstroth hives, $5.00; ten frame, $6.00 each, f. o. b. Milaca.

W. R. ANSELL, Mille Lacs Apiaries,
MILACA, MINN.

Queens for Sale

BEST Golden and Leather Colored Italian Queens. Untested, 75c each; tested, $1 50 Holyland Queens, best for Southwest, $1.00 for warranted; $1.50 tested. Breeders, $3.00 to $5 00 each.

-Slone Bee Company,-
Slone, La.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell 1000 lbs. nice comb in 4x5 sections, delivered June 1. Sample case, $2.50.
R. E. PITTMAN, Grifton, N. C.

WANTED.—To exchange five-gallon can of pure honey for its equal quantity of maple syrup
W. H. YENNEY, Glassboro, N. J.

WANTED.—Apiary 20 to 50 colonies bees in eastern North Carolina, where they can remain.
I. J. STRINGHAM, 105 Park Place, New York City.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange 60-lb. cans for honey, cash, or offers. No. 1 at 50 cts. per case; No. 2 at 40 cts.
G. L. BUCHANAN, Holliday's Cove, W. Va.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange catalog describing the best hive in existence, a double-walled hive for only 20c extra, for your name and address.
T. K. MASSIE, Tophet, W. Va.

WANTED.—Bees in Dovetailed or Langstroth hives, full colonies in the immediate vicinity of Chicago. Write promptly, stating number of colonies offered, condition, price at which they will be delivered in Chicago, etc. THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Bees in Danzenbaker hives in the vicinity of New York City, Philadelphia, Chicago, Cincinnati, and St. Paul. Must be free from disease. Red-clover stock preferred, though almost any grade can be used. Write, giving price wanted, condition of bees, combs, etc. Address The A. I. Root Company, Medina, Ohio.

Help Wanted.

WANTED.—Assistant with some experience. who is willing to bach, one to three miles out. State experience and salary.
THOS. STANLEY & SON, Manzanola, Colo.

Addresses Wanted.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—A limited amount of ginseng sets.
C. G. MARSH, Kirkwood, Broome Co., N. Y.

FOR SALE.—500 combs in Simplicity and Hoffman frames. L. D. GALE, Sherman, N. Y.

FOR SALE.—Root's bee-supplies for Illinois. Catalog free. H. S. DUBY, St. Anne, Ill.

FOR SALE.—Bee-keepers' supplies. Root's goods at Root's prices. Send for catalog.
G. O. EVANS, Fulton, Mich.

FOR SALE.—At 75 cents each, untested queens, from selected Italian mothers. Satisfaction guaranteed.
E. A. SIMMONS, Fort Deposit, Alabama.

FOR SALE.—Single-comb White Leghorn eggs from extra laying strain, 15 $1.00, 30, $1.75; 100, $4.00.
C. M. WOOLVER, Richfield Springs, N. Y.

FOR SALE.—200 L. extracting-combs, 8 cents each; 144 brood, same price; 50 eight-frame Dovetailed bodies painted, 20 cents each; 28 tops and bottoms, 5 cents each. J. HENNION, Whippany, N. J.

FOR SALE.—10 colonies of bees in ten-frame hives at $5 a colony, and 20 AD Jumbo complete hives, painted, at $1.25 each. EARL BAKER,
2340 Ayres Ave., Toledo, Ohio.

FOR SALE.—57 New AE5 8 fr. Root's Dovetailed hives in flat for $55.00, or 10 for $10; also 10 new 2S 8-frame supers in flat for $3.50.
R. S. CHAPIN, Marion, Mich.

FOR SALE.—Five-gallon square tin can used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—3000 L. extracting combs, in first-class condition, at 10 c each. Also 200 8-frame painted bodies at 25c.
H. & W. J. MANLEY, Sanilac Center, Mich.

FOR SALE.—130 4. I. 10 supers ready to put on the hives; ⅔ of the sections contain partly drawn combs; $58.50 for the lot, f. o. b. here.
J. T. HAMMERSMARK, Vassar, Mich.

FOR SALE.—Italian bees, full colonies, $4.00 three-frame nucleus, with queen, $2.50; two-frame nucleus, with queen, $2.25; one-frame nucleus, $1.50; tested queen, $1.25; untested, $1.00; L. frames.
MRS. A. A. SIMPSON, Swarts, Pa.

FOR SALE.—Dahlia bulbs, crimson, scarlet, pink, yellow, variegated, etc., 15c each; $1.50 per dozen. Canna bulbs, mixed, green, and bronze foliage, choice stock. 10c each; $1.00 per dozen. Prices on larger lots on application. J. C. READ, Florist,
449 West St., Gardiner, Me.

FOR SALE.—Apiarian outfit of small house and acre of land with 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot. X Y Z, GLEANINGS.

FOR SALE.—Full colonies in Dovetailed hives, $8; 1-frame nucleus, $2.75; 2-frame nucleus, $3.50; ½ lb. bees and queen, $2; 1 lb. bees and queen, $3. All will have pure Italian long-tongued honey queens, laying, and warranted purely mated. J. B. MASON,
Mechanic Falls, Me.

FOR SALE.—An apiary and farm, consisting of 120 acres good grazing land, and only fifteen minutes' walk from the city of Cardenas, and on the public road; having on said place 350 hives (American system), all necessary supplies to handle these, good house on grounds, numerous fruit-trees, plenty of shade for bees, thirty odd head of cattle raised on the place, among these six fine American milch cows (Holstein stock) selling nice little amount of milk daily, good-riding saddle-horse, ox-wagon with fine yoke oxen in fine condition, two good water wells, large pine-apple grove now producing, and with capacity to plant, if required, 60,000 henequen plants. Sell for cash, or on time with satisfactory guarrantee. Address
AMERICAN BEE HIVE, P. O. Box 44, Cardenas, Cuba.

THE CROWN Bone Cutter for cutting *green bones*. For the poultryman. Best in the world. *Lowest in price*. Send for circular and testimonials. Wilson Bros., EASTON, PA.

Do You Need Queens?

If so, you want none but the best. **Prolific Queens?**—they mean large colonies. **Good Workers?**—they mean full supers We can fill your orders for such queens by return mail, from our choice strain of three band Italians, which are not excelled as honey-gatherers. : : :

Choice tested queens, $1.00 each; untested 75c; per dozen, $8.00. *Send for circular.*

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

Virgin Queens.

Italian queens bred by years of careful selection from red-clover and Superior stock from W. Z. Hutchinson. No better bees to be had anywhere.

Untested queens, 75 cents; after June 15th, 60 cents.
Tested queens, $1.00; after June 15th, 75 cents.
Write for discount on large lots.

CHAS. KOEPPEN,
Fredericksburg, - Virginia.

1904.

TRY J. W. TAYLOR'S record-breakers. They are three-banded leather-colored Italians. They have broken all records as honey-gatherers. I have made a specialty of queen-breeding for ten years to secure the best bees, and now I have them.

Untested, 75 cts., or $8.00 a dozen; tested, $1.25 each; select tested, $1.75; each. Breeders, the best, $4.00 each.

I have three yards, and can fill all orders by return mail. I guarantee safe arrival and satisfaction. J. E. Atchley says the finest queen he ever owned he bought from me. Try one. **J. W. TAYLOR, Ozan, Ark.**

MY GOLDEN BREEDER

gave me 400 pounds of honey last year. Her daughters are 75c each; $8 00 per dozen.

George W. Cook, - Spring Hill, Kans.

===Red-Clover and Italian Queens===

FOR SALE.

Untested queens, 75c; tested, $1.00; selected, $1.25; breeders, $2.50 to $5.00. All queens by return mail for 1904. Send for circular. **G. Routzahn, Biglerville, Pa.**

QUEENS DIRECT FROM ITALY.

Please send us your address on a postal card, and we will send you our price list of queens, written in English. Correspondence not sufficiently post-stamped will be refused. Our motto: "Whatsoever ye would that men should do to you, do ye even so to them." Write

Malan Brothers, - - - - Queen-breeders.
"Apiario," Luserna, San Giovanni, Italy.

Red Clover Italian Queens.

Fine Northern bred, originated from best long-tongued Red Clover breeders in United States; three-banded strain work on red clover, bred for business in full colonies under swarming influence; gentleness, honey-gathering, and wintering qualities are prime object. Untested, $1.00; six, $5.00; tested, $2.00 six, $10.00; select tested, $3.00. After July 1st deduct 25 per cent. Satisfaction guaranteed. Remit by money-order. **Isaac F. Miller, Knoxdale, Pa.**

All the Nuclei Engaged

that I can deliver in May. Would prefer to sell 100 nuclei in June to running my apiary for honey. My bees are good strain of Italians. The combs are wired frames 17¼x9¼, top-bars 18⅝ long. Bees per lb. in June, on a comb in lots of 12, $1.10; six cages in each package. Combs are *value* exceeding express charges to all points. **B. F. Averill, Howardsville, Va.**

HAGEN'S

Comb Foundation Factory

(*WEED PROCESS*).

Is turning out a grade of foundation that is not surpassed by any made, and is guaranteed to give perfect satisfaction. A share of your trade is solicited. Wax worked up for bee-keepers also. In the market at all times for beeswax at the highest market price. Samples of foundation sent on request.

H. F. HAGEN,
Denver, - - - Colorado.
601 High Street.

Italian Queens in State of Washington.

Long-tongued red-clover queens; untested $1; tested $1.50. After July 1, untested, 70; tested, $1. Common Italians same price. Satisfaction guaranteed.
ROBERT MIRRING, DRYAD, Lewis Co., WASHINGTON.

Potatoes For Sale.

Early Everett, large yielder, good quality, pink, ½ bushel, 75c; bushel, $1 25. Burpee's Vermont Gold Coin; this is Burpee's *best* and newest. Late, white, good yielder; smooth, mealy cooker, ½ bushel, $1.75; bushel, $3.00 New Russet, scab proof, late white, bushel (seconds only, firsts all sold), 90 cts.

WILBUR FENN, Tallmadge, Ohio.

SPECIAL CROPS.

A twenty-page monthly magazine; $1.00 per year; sample copy, 10c. Tells how to grow ***GINSENG, GOLDEN SEAL, SENECA SNAKE ROOT,*** and other unusual and money-making crops. Shows how more money can be made from a small garden than from a 500-acre farm. Four months on trial, 25 cts.

Box 804. Pub. Special Crops,
Skaneateles, N. Y.

DID YOU LOSE HALF OF YOUR BEES ?

Then save money by ordering your stationery and honey-labels of us. Samples and prices free. It is in the doing we excel, and not in talking about it.

Young Brothers, - Girard, Penna.

1½ STORY EIGHT-FRAME L. HIVE $1.00.

Sections, Dovetailed hives, Foundation, and all supplies **at Reduced Prices.** Send for list.

W. D. SOPER, - Route 3, JACKSON, MICH.

Wanted! **Lovers of Good Books** to write for list of 200 titles to select from. Beautiful cloth-bound $1 books mailed for 50c. These books are by the best authors, 200 to 500 pages. **The FRISBEE HONEY CO.,**
(Ref. Publishers of Gleanings.) **Box 1014, Denver, Col.**

Hunter-Trader-Trapper

A journal of information for hunters, traders, and trappers; published monthly; subscription $1.00 per year; sample copies ten cents.

Special time-offer, five months for........................**25c.**

Gleanings in Bee Culture and H-T-T each one year........$1.50.

HUNTER-TRADER-TRAPPER,
Box 90. **Gallipolis, Ohio.**

PEACH TREES Large size, 3c each. Trees kept dormant in good shipping condition till May 20. Circ'r free. R. S. JOHNSON, Stockley, Del. Box 43.

More Room, More Stock

We now occupy the greatest floor space, and carry the largest stock of goods, that we ever did before. Our specialty is

Wholesale and Retail.

Lewis' Goods
AT
Factory Prices.

Dovetailed hives, Wisconsin hives, Champion Chaff hives, Improved Langstroth Simplicity hives, and our new hive which we call the Acme hive. Thousands of pounds of comb foundation; millions of sections in about 30 different sizes and styles, and everything the bee-keeper needs.

Also a full line of Hoosier Incubators and Brooders.

Do not fail to find out all about

THE ACME HIVE.

Hundreds of them already sold, this year. Catalogs and plenty of information free.
Let us estimate on your order.

C. M. Scott & Co., 1004 E Washington St **Indianapolis, Ind.**

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

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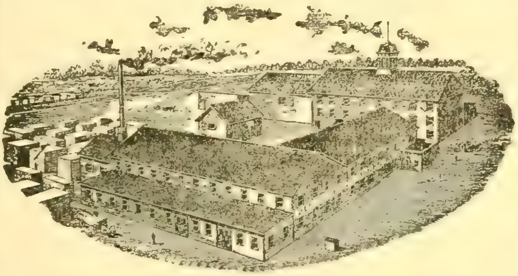
The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



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Box 60, RED OAK, IOWA.

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We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

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Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

I. J. Stringham, New York,

—Keeps in stock a complete line of—

Apiarian supplies

Colonies of Italian bees in new hive			$8.50
Three-frame nucleus colonies with Italian queen			3.75
Tested Italian queen	1.25	Untested queen	1.00
Silk-faced veil, best made	.40	Catalog	FREE

Apiaries--Glen Cove, L. I. Salesroom--105 Park Place, N. Y.

NOT IN THE TRUST.

The oldest bee-supply house in the East. Sells the BEST GOODS at former prices.

Send for Catalog.

J. H. M. COOK,
70 Cortlandt St., New York City.
Tested queens now ready by return mail.

Pacific Coast Buyers

are directed to the announcement that

SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California,

carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundation, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added. This saves buyers $1.50 per 100 pounds in freight, or 36c on each hive.

Root's Bee-Supplies
AT
ROOT'S PRICES

Send for catalog.

S. D. BUELL, Union City, Mich.

BEE-KEEPERS' SUPPLIES FOR KANSAS

Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*

A. W. SWAN & CO. Centralia, Kan.

If the Bull Runs

next to the poultry, use Page Poultry Fence.

PAGE WOVEN WIRE FENCE CO., Box 8, Adrian, Mich

SPECIAL NOTICE

Special Notices By Our Business Manager.

PERFORATED ZINC STRIPS.

The rows of holes in the queen-excluding zinc from our new machine are as close together as in the original Tinker zinc. In making zinc strips for wood-zinc honey-boards it is customary to remove every third punch. By this plan the strips cut from the new zinc will be $\frac{13}{16}$ wide instead of $\frac{15}{16}$, the width we have been supplying during the past two years. The wood slats used in connection with the new strips will have to be made a little wider, or not grooved quite so deep, or both. We can not fuss with any more of the strips $\frac{15}{16}$ wide except such stock as may be in the hands of our dealers.

The new zinc gives about 15 per cent more perforations than the old, and over 30 per cent more than the original Root zinc.

EXTRACTED HONEY.

We keep on hand a large stock of extracted honey from different sources, and are prepared to supply at the prices shown below. The following flavors are usually in stock.

PACKAGES.

By far the largest part of our honey comes put up in the 60-lb. square tin cans, two cans in a case. We also get some in kegs and barrels. We agree to furnish it only in such packages as we happen to have. Unless you find price quoted for different packages, it is understood that we furnish only in 5-gallon and 1-gallon cans.

PRICES.—F. O. B. MEDINA, CHICAGO, OR PHILADELPHIA

Kind.	In single five-gallon cans.	1 case of 2 five-gallon cans.	10 cases of 2 five-gallon cans.	In one-gallon screw-top cans.	Case of 6 or 10 one-gallon cans.
	per lb	per lb	per lb	per gal	per gal
White Clover	8½	8	7½	1 20	1 10
Basswood	8½	8	7½	1 20	1 10
Alfalfa	8½	8	7½	1 20	1 10
Orange	7	6½	6	1 10	1 00
Amber..........	6½	6	5½	1 00	90

AIKEN HONEY-BAGS.

We did not include these bags in our catalog this year because we wanted to see them more generally tested in different sections of the country, and proven a satisfactory package everywhere before doing so. We are prepared to supply them, and have arranged for a 1-lb. size in addition to the four other sizes sold heretofore. We are not yet supplied with the 1-lb. size, but expect to have all five sizes in abundance by June at the latest. We have orders in for 175,000 bags, and the prices in various quantities will be as follows:

1-LB. SIZE, 3½x5½.

100	$ .65	1000	$5.50
500	3.00	5000 @	5.25

2-LB. SIZE, 5x7½.		5-LB. SIZE, 7x10.	
100	$ .80	100	$ 1.20
500	3 75	500	5.50
1000	7.00	1000	10 50
5000 @	6.60	5000 @	10 00

3½-lb. SIZE, 6x9½.		10-lb. SIZE, 10x10½.	
100	$1.00	100	$ 1.50
500	4.75	500	7.00
1000	8 75	1000	13 50
5000 @	8.25	5000 @	13 00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2 00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

Special Notices by A. I. Root.

SEED POTATOES.

Almost every day I have to write to somebody that we are sold out of seed potatoes; and it is with some reluctance that I add, "I shall probably not grow potatoes for seed any more." Our regular business is assuming such proportions that we have been really obliged to drop off all side issues. In this issue you will see an advertisement from Wilbur Fenn, of Tallmadge, Ohio, offering some choice potatoes; and I take pleasure in adding that my cousin, Mr Fenn, for many years grew for me about the best seed potatoes I ever sold.

THE GOLDEN-LEAVED SALVIA.

Dr. Miller, on the first page of Straws, this issue, does not think much of my special favorite foliage-plant when put outdoors in the hot sun. I was aware of this; but when grown in a greenhouse shaded with cheese-cloth, as I have described, I should place it ahead of any other foliage-plant of the golden hue. The delicate purity of the new leaves as they unfold rejoices my heart morning, noon, and night. It is one of the easiest plants in the world from which to make cuttings; and when the temperature and the amount of moisture is just right it is one of the most rapid-growing plants. The finest strain I ever found came from John Lewis Childs, of Floral Park, N. Y. There is another golden salvia grown by florists, called "yellowbird," and the name is very appropriate; but I hardly think it equal to the strain from Childs. The plant not only grows rapidly, but often puts out fiery-red racemes of bloom when the plant is only one or two inches high.

SPRAYING brings fruits and flowers. We make the right appliances. Special adaptation to every need.
HAND, BUCKET, BARREL KNAPSACK and POWER SPRAYERS.
20 styles. Nozzles, hose, attachments, formulas, every spraying accessory. Write for free catalog.
The Deming Co., Salem, O.
Western Agents, Henion & Hubbell, Chicago.

THE POULTRY REVIEW, containing monthly a comprehensive review of the best poultry papers published; 50c a year; with this paper, $1.00 a year. Before subscribing elsewhere get our clubbing rates.
The Poultry Review, Dept. IX, Bustleton, Pa.

EGGS
$2 PER 13 for White and Barred Rocks, Silver-laced Wyandottes, Red Caps, White and Brown Leghorns; and Black Minorcas.
$3 PER 13 for Buff Rocks, Buff Orpingtons, Buff Leghorns, Black Spanish, and White Wyandottes. Reference, The A. I. Root Co.
Quality Poultry Yards, - Medina, Ohio.

FOR SALE.—Black queens from natural swarms, 25 cts. each. IVEY SEAWELL, Ft. Deposit, Ala.

1884 **PRICE LIST OF** 1904

Italian Queens and Bees

Untested Queens, each	$1 00
Tested Queens, each	1 50
Select Tested Queens, each	2 50
Two-frame Nucleus (no queen),	1 50
Three-frame Nucleus (no queen),	2 25
Four-frame Nucleus (no queen),	3 00
Full Colony, eight-frame, (no queen)	6 00

We are booking orders for Queens and Bees at the above prices.

We breed with scientific, intelligent methods from the best Imported and Long-tongue stock. Cheaper queens may be had elsewhere, but we make no effort to compete with the prices of the CHEAP-QUEEN men. Our stock is worth our price. You will be pleased with our stock and our prompt and careful attention to your orders. We guarantee it.

64-page Catalog of Supplies Free.

J. M. JENKINS,

WETUMPKA, - ALABAMA.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

Dittmer's Foundation

RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

GUS. DITTMER, - - - AUGUSTA, WISCONSIN.

BINGHAM
SELF CLEANING
BEE SMOKER

Bingham Smokers

Bingham Smokers are the originals, and have all the improvements, and have been the **Standard of Excellence** for 23 years. No wonder Bingham's four-inch Smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4 inch stove, per mail, $1.50; 3½ inch, $1.10; 3-inch, $1.00; 2½-inch, 90 cents; 2-inch, 65 cents.

T. F. Bingham, Farwell, Mich.

Volume XXXII. JUNE 1, 1904. Number 11

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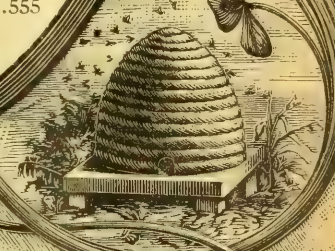

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MEDINA OHIO
U.S.A.

Eastern Edition.

Entered at the Postoffice, at Medina, Ohio, as Second-class Matter.

PROMPT SHIPMENTS OUR SPECIALTY

If you want your orders filled within 24 hours send them to us. We have the largest stock in Michigan, and can ship at once.

Beeswax wanted at highest market prices.

LEWIS C. & A. G. WOODMAN,
GRAND RAPIDS, MICH.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

Beeswax wanted.

George E. Hilton, Fremont, Mich.

Pack Your Beeswax in a Box,
put your name and address inside,
And ship it to us at Beech, Michigan.

Send the shipping bill with the attached coupon filled out. If you want 30 cents per pound cash for it delivered at our station, we'll send it; if you want 32 cents per pound for it in exchange for supplies, we'll fill your order. Just tell us what you want and we will send you

ROOT'S GOODS AT ROOT'S PRICES.

We want every bee-keeper in Michigan to have our catalog. We want your trade; and if we once get you, we are going to use you just as well as we can so as to hold you.

For Root's Goods in Michigan,
WRITE TO
M. H. Hunt & Son,
Bell Branch, - Mich.

M. H. HUNT & SON,

I have shipped you .... pounds of beeswax by freight to Beech, Mich. I want (cash), (supplies, enclosed find order for same.)

Name ....

Address ....

C. H. W. Weber,

Headquarters for

Bee-Supplies

Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Queens Now Ready to Supply by Return Mail; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above. **Prices for Untested, during June, one. 75; six, $4.00; twelve, $7.50.**

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white, and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A NO. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

NO. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

NO. 2.—Three-fourths of the total surface must be filled and sealed.

NO. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—The honey market has been quiet for the last ten days, and very little doing. Some odd lots have been sold at very low prices to clean out. The demand during this changeable spring weather has been very light. There is no fancy comb honey on the market. We quote No. 1, 9@10c; amber, 8@9; fancy white extracted, 7@7½; amber, 6½@7. Beeswax has been received in large quantities; prices are a little off. We quote bright yellow, 30c; dark, 28@29. We are producers of honey and do not handle on commission.

WM. A. SEISER,
May 20. 10 Vine Street, Philadelphia, Pa.

TOLEDO.—The market on comb honey remains quiet as usual at this time of the year, but we wish to state that honey is nearly exhausted in this section of the country. We are closing out our No. 1 at 15c. Fancy white clover would bring 14@15. Extracted, in barrels, white clover, 6@6⅛; cans, 7@7½; amber in barrels, 5@5½; cans, 6@6½; Beeswax, 26@28.

May 20. GRIGGS BROS., Toledo, O.

ST. LOUIS.—There is absolutely no betterment noticeable in regard to the honey trade in this market. While the stocks are not large, the demand is very limited, almost at a standstill. Quotations as follows: Fancy comb from 12@14; A No. 1, 11@12; No. 1, 10@11; No. 2, about 9; No. 3, 7@8. Broken honey, 5@6. Extracted honey, 5@5½ in cans; 4@4½ in barrels. Dark and inferior grades will bring less.

R. HARTMANN & CO.,
May 20. St. Louis, Mo.

ALBANY.—The honey market is quiet and dull there being little demand now as it is between seasons. We hear of light crops predicted in this section. We quote white comb in good condition, 12@14c; mixed, 10@12. Extracted, dark, 5@5½; light, 6½@7. Beeswax, 30@32.

May 27. MACDOUGALL & CO.

SAN FRANCISCO.—New comb per lb., white, 10@12; amber, 8@10. Extracted, water-white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Beeswax, 28@29.

ERNEST B. SCHAEFFLE,
May 22. Murphys, Cal.

DENVER.—No. 1 white comb honey all sold out, and but very little No. 2 on the market. No. 1 white comb honey brings $2.50@$2.75 per case of 24 sections; No. 2, $2.25@$2.40. No demand for candied comb honey. No. 1, white extracted, 7¼@7¾; light amber, 6½@7. Beeswax wanted at 26@30.

THE COLO. HONEY PRODUCERS' ASS'N.,
May 21. 1440 Market St., Denver, Colo.

BOSTON.—The demand for honey is extremely light, almost nothing, and supplies are heavy for this time of the year, and our prices, therefore, are largely nominal. We quote fancy white at 15@16; A No 1, 14@15; No. 1, 14. No call for under grades. Extracted from 5@6.

BLAKE, SCOTT & LEE,
May 14. Boston, Mass.

CHICAGO.—The market has an over-supply of comb honey, very little of which will pass as No. 1 grade; price is 11@12, and off grades at a corresponding value. Extracted brings 6@7 for best white and amber 5@6. Beeswax, 30@31.

R. A. BURNETT & CO.
May 19.

NEW YORK.—The market is decidedly dull, and it is almost impossible to move large blocks. What little trade there is, is done in a small way. We quote nominally: fancy white at 13c; No. 1 at 12c, and amber at 10c; no demand for dark at all. Extracted is in fair demand at unchanged prices with a good supply. Beeswax remains firm at 30c, but we expect a decline very shortly.

HILDRETH & SEGELKEN,
May 21. 265 Greenwich St., New York.

CINCINNATI.—The honey market continues to be dull; if anything, the prices on comb honey are lower; concessions are made on bigger lots. I quote fancy white comb from 12½@14c. Sales on extracted are made at the following prices: Amber, in barrels, 5¼@5¾; in cans, ½c more; alfalfa, water white, 6@6½; strictly white clover for extra fancy 7½ and 8c. Beeswax, 30c.

C. H. W. WEBER,
May 19. 2146 Central Ave., Cincinnati, Ohio.

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.

G. W. WILSON, R. R. No. 1, Viola, Wis.

FOR SALE.—Thirty barrels choice extracted white-clover honey. Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps.

EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

FOR SALE.—Fancy basswood and white-clover honey; 60-lb. cans, 8c; 2 cans or more, 7½c; bbls., 7½c.

E. R. PAHL & CO., 294 Broadway, Milwaukee, Wis.

WANTED.—*Extra* fancy comb honey, about 100 lbs. each in Danz and 4¼x4¼ sections, the latter in two-beeway and four-beeway sections.

THE A. I. ROOT CO., Medina, Ohio.

BEE-SUPPLIES EXCLUSIVELY.

A COMPLETE LINE OF

Lewis' Fine Bee-Supplies, Dadant's Foundation Bingham's Original Patent Smokers and Knives, Root's Extractors, Gloves, Veils, Etc.

Queen Bees and nuclei in season. In fact, anything needed in the "Bee-line," at FACTORY PRICES HERE IN CINCINNATI, where prompt service is yours and freight rates are lowest.
Special discounts for early orders. SEND FOR CATALOG.

THE FRED W. MUTH CO.

We are successors to nobody and nobody is successor to us.

51 WALNUT STREET. CINCINNATI, OHIO.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & Co., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity.
R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED—Beeswax. We are paying 28c cash or 30 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York City, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
THE A. I. ROOT COMPANY, Medina, O.

Chas. Israel & Brothers
486-490 Canal St., New York.
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

BEE-KEEPERS, let me sell you the best goods made. You will be pleased on receipt of them, and save money by ordering from me. My stock is all new and complete. I handle the G B. Lewis Co and The A. I. Root Co. goods. Send for catalog. It is free.
W. J. McCARTY, Emmetsburg, Iowa.

JUNE BRIDES
or any other kind. You should have embossed stationery. Makes a splendid wedding present. Send for samples and prices.
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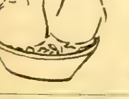

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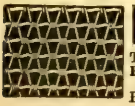

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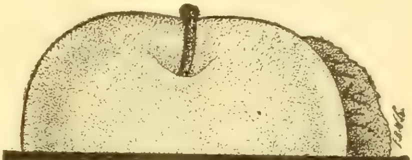

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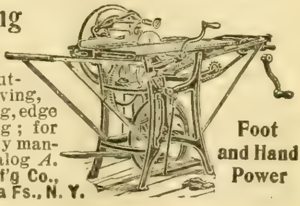
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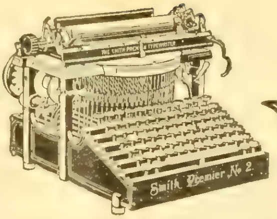
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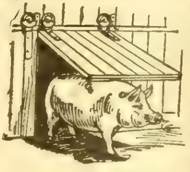

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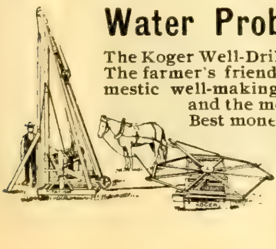

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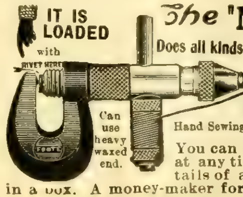

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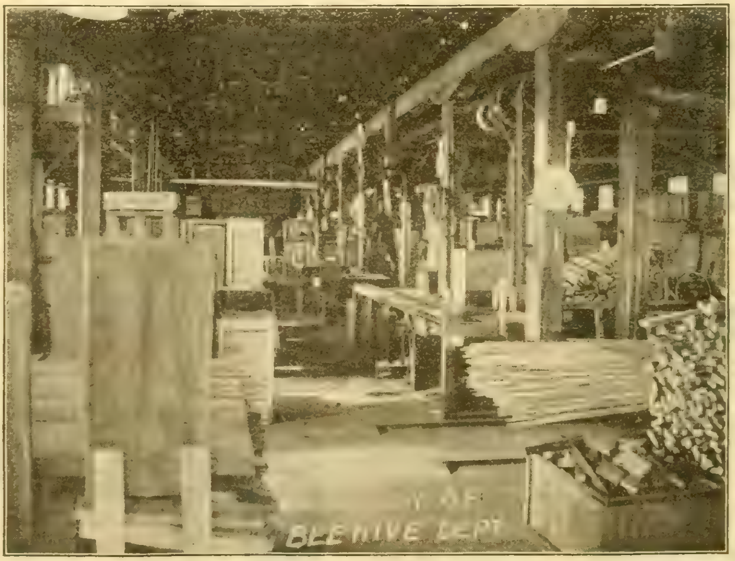


GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by The A. I. Root Co.
$1.00 per Year
Medina, Ohio.

Vol. XXXII. JUNE 1, 1904. No. 11

Stray Straws

By Dr. C. C. Miller.

THE LAMENTED *Revue Internationale*, Mr. Ed. Bertrand, editor, has a successor in *Bulletin de la Societe Romande d'Apiculture*, which opens up well with good ability back of it.

G. J. YODER'S plan of putting foundation in sections will make nice work at top and sides; but do you think, Mr. Editor, it will be all right at the bottom with that ¼-inch space between starter and bottom-bar? In this locality I don't believe it would be built any better to the bottom-bar than if the section were only one-fourth full of foundation. [You are probably right.—ED.]

PASTOR FLEISCHMANN, in *Ill. Monatsblætter*, speaks in complimentary terms of the Jefferson extracting-wagon (January GLEANINGS), with its ample provision for ventilation, as compared with the German wagons with their "bake-oven heat." [Yes, indeed, the Jefferson wagon is a good one. I believe it to be so good that I have incorporated it in the next edition of the A B C book now on the press.—ED.]

"TO PREVENT swarming, foundation is to be preferred," page 503. That probably means that a swarm hived on foundation is less likely to swarm again the same year than if hived on full combs. If so, isn't it because more rapid progress is made with combs than with foundation, and isn't rapid progress the very thing we want? With many there isn't one chance in fifty of a swarm swarming again anyhow, whether hived on combs or foundation.

F. N. SOMERFORD has my hearty sympathy in his condemnation of Hoffman frames, but not because they "place too much wood between the brood and the super for comb honey," page 489. If the sections are too close to the brood-frames it favors carrying bits of black comb from the brood-combs to finish sealing sections. [If a manufacturer could make a brood-frame that would suit everybody in every particular, and could have the exclusive manufacture of it, he would have a bonanza. But he will never get the frame nor the bonanza.—ED.]

AN UNCAPPING-PLANE is described in *Illustrierte Monatsblætter* as the latest. The bit of the plane is an uncapping-fork. In 60 seconds it uncapped 3 combs, and left the cappings *perfectly dry*. Of course, it wouldn't work well on a very uneven surface. [Judging from the illustration only, I should say that a very rough burr edge would be left to the tops of the cells. These little fins or bits of wax would clog the wire cloth in the extractor. I should like to have you watch and see whether any thing more comes of it.—ED.]

WHEN I READ about A. I. Root's visit to those greenhouses, with all those roses, p. 507, how I did wish I could have been along! Honest, now, A. I., wouldn't you have enjoyed it more if I had been along? [Yes, doctor, I should have greatly enjoyed having you along to look at the roses; and I made up my mind then to write you to pick out the biggest commercial greenhouse in your neighborhood, and the next time I go that way you and I would go through it together. I should want to take plenty of time, and not be rushed as we were when we went through the aquarium on Catalina Island.—A. I. R.]

THAT FOUL-BROOD LAW of Ohio, in spite of some spots where the language needs tinkering, is a fine law. I wish we could have as good a one in Illinois. Section 8 says, should any one "conceal the fact that such disease exists among his bees." Just what constitutes concealment might be a nice point to determine. Would it be concealment to keep entirely quiet about it? [Suppose the bee-keeper should let an employee or neighbor, or both, know that he had the disease, but tells them to keep quiet about it. Suppose, later on, the employee becomes dissatisfied with his boss, and should "squeal" to other bee-keepers. If the neighbor had bees it would be to his interest to "squeal" also. The fact of concealment could be very easily established in court.—ED.]

WASN'T YOUR FRIEND a little off in his arithmetic, Mr. Editor, p. 481, when, upon being told that a $5.00 colony yielded $10.00, he exclaimed, "What! clear 100 per cent off from the investment"? "In this locality" it would be 200 per cent on the investment. [You will notice I used the wo ds "clear 100 per cent *off* from the investment." It is true that ten dollars would be twice as much as five, or 200 per cent of that amount; but when I said *clear* 100 per cent, I meant 100 per cent clear of all expenses. Perhaps the wording was a little unfortunate. It would be perfectly proper to say 200 per cent on the investment; but I did not say that—I said "clear."—ED.]

O. O. POPPLETON, p. 482, prefers to kill all the old bees in a case of paralysis, saying it "is done without destruction of any thing of value." Is it possible that the disease is so bad down south that the bees are of no value? I feel sure that as far north as this the honey they would store would make the sulphur-sprinkling treatment the better way. [I rather judge that friend Poppleton does not consider paralytic bees worth very much. In a locality with long warm seasons, bees are not nearly as expensive as in the North, where the seasons are shorter and the winter losses sometimes severe. I am, therefore, of the opinion that Mr. Poppleton could raise healthy bees from healthy stock cheaper than he could fuss with paralytic bees. But a northern locality might make the sulphur cure more feasible, and easier to carry into effect.—ED.]

THE TOTAL AMOUNT paid in a year to all the wage earners, salaried officials, clerks, etc., in the whole United States, was $2,736,044,884, and the annual drink-bill was $1,410,236,702. According to that, for every dollar paid in wages or salaries 51 cents was paid for intoxicating drink. Doesn't seem possible, does it? [If we were to add the county infirmaries, asylums, hospitals, and jails necessarily made larger because of this iniquitous traffic, saying nothing about the woe and misery, we would possibly have to add another 51 cents, which would make the total equal to the wages of Uncle Sam's employees. It is the curse of all civilized nations; and if the good people of our land would invariably scratch the liquor candidates in their votes, the evil would be outlawed, and in time be wiped out.—ED.]

ALLEN LATHAM never has a driven swarm abscond, and gives in *American Bee Journal* his plan of treatment: "Three sticks about six feet long are tied together at one end, and then spread apart and set up as a tripod. There is then tied to the top a branch suitable for a swarm to cluster on. The colony to be driven is set aside, and the tripod placed over the old stand. The bees are then shaken out by the old stand, old and young. After an hour or so the bees will all be clustered like a natural swarm upon the branch and should be left thus for about half a day. They may then be hived anywhere, and will stay as well as a natural swarm, and will work nearly if not quite as well." [This seems like a good idea. Mr. Latham carries out forced swarming in its entirety. We shall be glad to get reports from our readers as to how the plan works, and whether better than the ordinary forced swarm, by shaking or brushing the bees directly into the broodnest in the first place.—ED.]

RIETSCHE WAX-PRESSES are used by the thousands in Europe, but not at all in this country, and it has seemed a wonder that American bee-keepers were not enterprising enough to follow the example of their transatlantic brethren instead of buying all their foundation ready-made. [I suppose the principal reason is, there is no one on this side of the Atlantic to push it. We were seriously considering the matter of introducing it in this country; but the preliminary tests we made with the machine sent over direct from Germany were far from satisfactory. Its operation was a messy job at best, and, worst of all, we were not able to get out any medium, much less light-weight, foundation. It would, therefore, be cheaper for American bee keepers to buy foundation at less weight, if they consider labor an item, than to buy a press and use up from 1½ to 1¾ pounds of wax where they ought to use only about a pound. —ED.]

W. E. LITTLE'S letter, page 505, suggests some questions. "By a little practice you can move a light line with a plumb, by just concentrating your mind on it." How much practice does it take, and why can't you do it the first time as well as after practice, if you concentrate just as hard the first time as last? and must you concentrate on the line or the bob? And in that case where the doctor pounded the liver so hard he could "hear the bile slop about," did the "suggestion" have any thing to do with the slopping, or only with the hearing? [Now look here, doctor. Even if you do not have faith in the plumbline, you and I both should be careful about hurting the feelings of the dear brother who *does* believe. While I write, another brother suggests that although the operator and other witnesses *saw* the plumbline move in response to their will power, it might not have moved at all —that is, so that a scientific apparatus would record the movement. And this throws "daylight" on the whole matter. —A. I. R.]

REPLYING, Mr. Editor, to your question, page 480, it is a hard thing to get an exact measure of the amount of adulteration in Europe as compared with this country; but if you were to see all that is said in the

European journals about it, you would likely agree with me. Artificial honey is advertised in Germany as it is not here, and that even in one of the bee-journals. However it may be about adulterated honey, I know that adulteration of foundation is not practiced in this country as in Europe. Thousands of Rietsche's foundation-presses are in use there, and I used to wonder why they were so common there and could make no headway in this country. I think it lies chiefly in the fact that it is so hard for the European bee-keeper to get pure foundation unless he makes it himself. One sample on the market showed 28 per cent of beeswax only! The American bee-keeper never gives a thought to the question whether the foundation he buys is pure. [I have before stated, but it will bear repeating, that all Weed foundation necessarily has to be made of pure beeswax. The Weed sheeter will not handle wax adulterated with paraffine, ceresin, nor any of the cheap mineral waxes of commerce. Some years ago the dental trade called for a mixture of half wax and half paraffine. We endeavored to meet the demand on a Weed sheeter; but it balked, and we had to give it up as a bad job. We have been able as a consequence to supply the dental trade with only pure wax. As a very large per cent of all the foundation made in the United States is made by Weed machinery, it is simply impossible that such percentage could be adulterated.

The remainder, made by other processes, is probably equally pure, for the reason we do not believe there are any foundation-makers in the United States who would put out adulterated foundation, even if they could. The foundation-maker who would attempt to furnish his trade with adulterated goods might expect to shut up his shop within a year. If Rietsche wax-presses are used in Germany because of the great amount of adulterated foundation on the market, there would be a very small demand for the Rietsche presses in this country for a like reason.—ED.]

Pickings from Our Neighbors' Fields
BY
"Stenog."

In a private note to me, Mr. Danzenbaker makes the following explanation of certain things that need explaining. It makes every thing clear:

> *Bro. Stenog:*—I have been for years recommending Medina queens to all my bee keeping friends as the best in the world; so that I acted consistently in taking a Medina queen to double the joys and happiness of my life and home. Was it not more a matter of fixed faith than a new "theory" carried into practicing as I preached? F. D.
>
> St. Louis, Mo.

A long acquaintance with Mrs. D. makes it an easy matter for me to say that Mr. Danzenbaker is to be congratulated on the wisdom of his new move.

* * *

A Spanish paper, *El Agricultor*, published in Cuzco, Peru, says:

> Children should have pure honey frequently, and in liberal quantities. Warm milk with honey and brown bread, or, better, unbolted flour, is an excellent lunch. If you wish for long life, be sure that this favorite dish of the ancients honey and milk, be never wanting on your table. This is one of the most healthful and nutritious dishes.

* * *

What is called "Columbia" foundation is attracting considerable attention in Germany. Extremely thin sheets of tinplate are run between steel rollers having exactly the outward appearance of ordinary foundation-rollers. These are then dipped in wax of the right temperature, and used like common foundation. Just what this will amount to, time will tell.

* * *

Vcela Moravska, a Bohemian bee-journal, gives in its May issue a list of 139 bee-books, dating from 1759 down to the present time, none of which I have seen before. They are nearly all German. What the total number is I do not know. This shows not only the great amount of literature the bee has drawn around itself, but the wonderful amount of study the Germans have devoted to apiculture. All the books published on bees, from the very beginning, would make an immense library. Stranger still, the number shows no sign of decreasing.

* * *

AMERICAN BEE JOURNAL.

The Old Reliable is full of interest as usual, and Mr. York is evidently doing his best to make a first-class bee-journal, and he is succeeding.

The editor clips the following from the Chicago *Record-Herald:*

> Honey is a valuable medicine, and has many uses. It is excellent in most throat and lung affections, and is often used with great benefit in place of cod-liver oil. Occasionally there is a person with whom it does not agree, but most people can learn to use it with beneficial results. Children who have natural appetites generally prefer it to butter. Honey is a laxative and sedative, and in diseases of the bladder and kidneys it is an excellent remedy.

Mr. C. W. Blakly, of Illinois, says, "I will say I have tried the plan of making my own hives, but found out that it cost me more to buy the lumber and hire men to make them than they cost me at the factory; and then they would not be cut and fitted like the hives we get at the factory." Right in the same line a correspondent of the same journal, writing from Iowa, asks, "Who ever saw a plea for home-made hives in a bee-paper whose editors were engaged in the supply business?" I have. The subject has been discussed with perfect fairness in GLEANINGS for a long time. The lack of fairness is more apparent in the insinuation involved in the question. If some are so situated as to be able to make their own hives cheaper than they can buy, the editor of GLEANINGS will be glad to herald the fact and tell how. The G. B. Lewis Co. say their trade was never so great as now, and Mr. York gives it as his opinion that not many have found it cheaper to make their own hives. But this is a question that each one is at liberty to settle for himself by actual trial. It's a good deal like making doors and window-blinds — a few can do it by hand, but the most of us will find it cheaper to buy. The severe language used by some in criticising the advice of bee-editors is certainly uncalled for, and always indicates a sense of weakness on the side defended. "Kind words can never die." Ugly ones have considerable vitality sometimes. Right here is another paragraph from a writer in Alabama, in regard to home-made hives. It is in the issue for May 12, the last one at hand: "I think Mr. Gill and others are right in trying to get bee-keepers to make their own hives. Such goods are getting too high. I can get all-heart, long-leafed pine, dressed on one side, for about $13.50 or $15.00 per 1000 feet."

Conversations
With
Doolittle

HYBRIDS OR ITALIANS, WHICH?

"My name is Jacobs, and I came to see if you would give me a little of your time for a bee talk."

"I have never refused to talk bees with any one, and I shall not try to begin with you. What is it you wish to talk about?"

"If you were breeding bees especially for honey-gathering purposes, which would you prefer—the hybrids or the dark or golden Italians?"

"That depends somewhat on what kind of honey I was working for. Volumes have been written on this subject, and the matter is not fully settled in the minds of all, even at the present time, some preferring one and others a different bee from the first. Some of our very best honey-producers tell me that they do not know which is best; but from my standpoint a true solution depends upon which we are producing — comb or extracted honey."

"Which would be your choice were you working for extracted honey?"

"If I were working for extracted honey exclusively I think I would select the darker Italians, or those produced from queens reared from an imported mother, allowing these queens to mate with whatever drones there were in and about the apiary, paying no attention to whether these drones were from Italian, hybrid, or black stock."

"Why do you say this?"

"Because such queens, mated indiscriminately, would be sure to give workers of the most active kind, which would pile in the honey if there was any to be had."

"How would you breed for comb honey?"

"If I were working exclusively for comb honey, then I would procure as good a queen of the golden variety as possible, and rear all my queens from her, allowing them to mate with any drones they might chance to meet, the most of which would, without doubt, be from an entirely different blood from themselves, which would give a direct cross, which always produces worker bees of great vigor."

"Why would you do this?"

"Besides the vigor already alluded to, in accord with the way you asked the question, I should not care one cent whether my yellow queens mated with drones from black or hybrid stock, as all of my experience goes to prove that the thoroughbred golden Italian queens, mated to drones of either black or hybrid stock, give bees equal to the very best for comb-honey purposes."

"If this is so, why do we read so much about allowing only drones from the best Italian stock to fly? And why was the drone-trap invented to catch and kill off all drones, except from the colony or colonies having the best Italian drones?"

"If I am right, such advice comes mainly from the standard of a queen-breeder."

"Well, why would you not rather take that advice, instead of allowing a promiscuous mating of queens?"

"The vigor part is one of the reasons. And then I should prefer not to have these young queens meet drones from young queens reared from imported mothers, or from drones reared from an imported mother, if I could conveniently hinder the thing —not because they would not give bees just as vigorous, and of just as good honey-gathering qualities, but for the reason that, as a rule, workers having much imported blood in them not only do not cap their honey nearly so nice and captivating to the eye as do those having more of the golden, hybrid, or German blood in them, but they are prone to store as much as possible of their honey in the brood-chamber, instead of going into the sections readily, as all honey-producers, having comb honey as the objective point, want their bees to do."

"I did not know that there was very much difference along this white-capping and brood-chamber honey-storing line."

"Others have told me that they could see very little difference; but I can only think that these are not very close observers; for with me there is a great difference, and an experience with both of these strains of Italian bees compels me to say that, for comb-honey production, the golden Italians stand twenty per cent ahead as to storing in sections, and thirty to forty per cent ahead of the dark Italians in whiteness of capping, some of them almost if not quite equaling the black in this respect, though none of the Italian races use so much wax in capping their combs as do the bees of the German variety. And I say this after having kept both side by side in my out-apiary all these years, and having of both varieties from very many of the best queen-breeders in the world."

"But back a bit you said, 'in accord with the way I asked the question.' What did you mean by that?"

"You asked the question, as I understood it, purely from a *honey-producer's* standpoint. A queen breeder can not work along the line a honey-producer can, for his stock must be conforming as nearly to the best thoroughbred Italians as possible. No one wants to invest in hybrid bees for breeding purposes."

"How is that, if they are as good for honey as any of the pure races?"

"Because when you come to breed from hybrids you have no certain way of knowing what you are doing, nor that you are securing a direct cross. Such breeding has nearly always proven that, unless you had something of known goodness in the Italian mother, after a little an inferior grade of bees in every way was the result."

"These thoughts are new to me, and I shall think on them and try to observe more closely than I have done. I will go now."

"Just a moment. Let me sum up so you can readily remember the points made. First, have your queens mate with drones as distantly related to the queens themselves as possible; second, use queens as closely related to the imported or dark Italian stock as possible, where working for extracted honey, for there are no bees in the world, in my opinion, that excel such for gathering and storing honey in combs already built, and in close connection with the brood. Third, where white capping of combs and a readiness to enter the sections is the object worked for, as is the case when working for comb honey, then choose the golden Italians, on account of their qualities in that direction."

"Thank you."

Editorial
By E. R. Root.

WHILE the winter was severe and the spring backward, conditions during the past week or ten days have been very favorable for bees. There has been warm and even hot weather, with frequent showers. Fruit-trees are just now, May 25, out of bloom.

WINTER LOSSES IN WISCONSIN.

A CAREFUL estimate made by Foul-brood Inspector N. E. France, also General Manager of the National Bee-keepers' Association, who has been traveling over Wisconsin in attendance upon his regular official duties, is that winter loss has been very heavy, very close on to 60 per cent. Clover is winter killed in the southern counties; bees have not been building up well.

THE GREAT DEMAND FOR BEES.

WE are having here an unprecedentedly heavy demand for bees in nucleus and full-colony form. We are shipping them at the rate of $100 worth a day. It is well we had a good stock to draw from or we should have been sold out ere this. This seems to indicate that many bees have been lost during the past winter, for many ordered just one nucleus, or perhaps two, to make a new start.

As many bees will be shipped during the next few weeks, I wish to emphasize the importance of providing an abundant ventilation. The whole top of the nucleus or hive should be open, and covered with wire cloth. Then a board, supported and nailed about two inches above the wire cloth, should be provided to protect it from being jammed or broken into, and to shade the bees if they are put in the sun by express agents.

HONEY-THIEVES BROUGHT TO JUSTICE.

A SHORT time ago a man by the name of B. F. Hoy, and his nephew, L. G. Wessley, according to the *Daily Californian*, burglarized a bee-ranch belonging to F. D. Lowe, at Bakersfield, Cal. It is said that Mr. Hoy had terrorized that community for years; that he was feared, and no one dared to prosecute him. Mr. Lowe concluded it was about time to do something. He appealed to the National Bee-keepers' Association to render him aid; but the directors decided that a case of that kind did not come under the jurisdiction of the organization. But Mr. Lowe followed the matter up, with the result that Hoy was convicted, and sent to the penitentiary for ten years. The other man, Mr. Wessley, plead guilty, and was given a light sentence—one year in the penitentiary — for the reason, it is alleged, he was led on by the older man, and because, further, he had a wife and baby dependent on him.

It has cost Mr. Lowe considerably more than he recovered, and he feels that the National ought to help him, as he has been the means of establishing a splendid object-lesson to other would-be violators of the law.

The lone bee-ranches in the mountains in California have been tampered with more or less by thieves; and it is a question in my mind whether the National ought not to render aid in cases of this kind. In any event, Mr. Lowe is to be congratulated for the stand he has taken in the interest of law and order.

NOT A FISH STORY; BARKING UP TRADE.

THIS has nothing to do with bees; and if you are not interested, do not read it. My boy has a puppy, a cross between a Scotch terrier and a pointer, that keeps saying "Yor-ick, Yor-ick," every hour of the day; and sometimes he keeps on saying "Yor-ick" all night. Late one night while I was trying to sleep, it popped into my head that the dog was calling to another bee-editor — the one who stands for the *American Bee Journal*. I doubt whether a human being could pronounce the word more distinctly than this pup does at times. I wrote friend "Yor-ick," telling him about this wonderful canine that could pronounce his name so distinctly, and that I thought I would name him *York* if he had no objections. He writes back that I must be a good interpreter, and thinks if I should send him to the St. Louis exposition he would be a great attraction for the Root Co.'s exhibit. He thinks, however, if I should teach him to say "York's honey," he could use him in Chicago. He has no objection, he says, to my using the name, but "it must be understood that the dog is to be a Prohibitionist, without any *cur*-tailment about him except his own." Then he winds up by saying, "Please excuse this doggoned letter." I have set myself to the task of teaching the dog to howl "York's honey" just as lustily as he now "Yor-icks" at night; and if I succeed I am going to put him in York's advertisement to bark up trade.

PUBLISHING BEE JOURNALS TO MAKE MONEY.

THE editor of the *Review*, in commenting on the fact that each year on an average witnesses the birth of one new bee-journal and the death of another, says, "If the main object in starting a bee-journal is to put money in the bank, disappointment will come as surely as night follows day;" and, further, the one who hopes to make a living by publishing a bee-paper can do so; but "if he wishes to measure success in dollars and cents he may choose from many other fields more fruitful in that direction."

OUR readers are requested to write at once a courteous letter to the editor of the *Ladies' Home Journal*, at Philadelphia, protesting against the statement made by Dr. Mary Walker, in the June number, to the effect that comb honey is manufactured of paraffine, and filled with glucose. It is *very important* that every one of our readers act upon this at once.

FORMALIN SUCCESSFUL FOR TREATING BLACK BROOD, BUT NOT FOR FOUL BROOD.

ONE of the most extensive bee-keepers in the United States, Mr. E. W. Alexander, of Delanson, N. Y., has contributed a valuable article to the *Bee-keepers' Review* for May. He thinks it is perfectly feasible to treat combs affected with black brood with formalin or formaldehyde; but he emphasizes the very great importance of doing the work thoroughly. Combs can not be put into supers or hives, one stacked above another, then applying the gas, with any expectation of getting satisfactory results. They must be put into an air-tight compartment, and subjected to the gas fumes for *many hours*.

He uses an ordinary honey-tank capable of holding 4000 lbs. of extracted honey. For a cover he makes one of wood lined on the under side with sheets of tarred paper, The combs are put in suitable racks, the top is securely clamped down by means of long rods, and the combs are fumigated for about five hours. To heat the drug he uses a small oil-stove which is placed under the generator. Although he does not say so I infer that he has a tube to convey the gas from the generator to the sealed tank. Another supply of formalin is, after the first fumigation, repeated. But this time the combs are left confined for four or five days, at the end of which time he finds the combs are thoroughly disinfected and fit to use again. He has in this way, he says, fumigated over 1000 of the worst combs he could find in 1000 colonies; and although some of them contained a little capped honey and brood, he has since had no trace of the disease.

But he does not recommend this formalin treatment for *foul* brood. The combs of that disease, he says, should be burned. Very emphatically he says, "Do not waste your time in trying to save combs that contain spores and germs of foul brood. You will certainly regret it if you do. I doubt if there ever was a comb of foul brood disinfected so it would be safe to put in a healthy colony." Mr. Alexander's reputation as a bee-keeper is such that I think we can place reliance on his statements.

SPECIALTY AND THOROUGHNESS.

Elsewhere in the article he emphasizes the importance of thoroughness, perseverance, and specialty. He says, "I am sorry that such a large per cent of the people who keep bees do not realize the necessity of being thorough in every thing connected with the business. Far too many of them are looking for some other business to go with it, not knowing that hardly one man in a thousand is smart enough to be cut in two, and two men made of him." The editor of the *Review*, in commenting on this in a footnote, says these words ought to be "printed in gold. . . Do not forget this when tempted to be or do half a dozen things."

SHALL THE NATIONAL BEE-KEEPERS' ASSOCIATION AFFIX ITS BRAND OF PURITY AND QUALITY ON THE HONEY PRODUCED BY ITS MEMBERS?

THE suggestion has been continually coming to me of late whether or not the National Bee-keepers' Association, in view of the widespread distrust of all comb honey and a large part of the extracted, could not in some way place its own brand of purity on honey produced by its members, so that the public and the large buyers would *know* that such honey was necessarily pure.

One of the York State local county societies did for a few years (I do not know whether it does now or not) brand all the honey put out by its members, guaranteeing its quality and purity. It strikes me that the National might and ought to do something of this kind. If a large part of the general public believes that comb honey is manufactured, and if it can be satisfied that a certain brand of honey is pure, it would purchase without hesitation.

It would not be very expensive for the National to have a local inspector for each large city, and have him look over each large lot of honey, inspect the shipping and way bills, and look over the correspondence to make sure that the honey was produced, put up, and shipped by some known responsible bee-keepers' society or individual member. I would assess the cost of this inspection of the honey on the producer or buyer of it who desires to have the brand of purity and quality of the National affixed to it. I would also have the inspector appointed by the Board of Directors and the Executive Committee jointly, they to examine the recommendations as to his fitness that have been received, and to apportion out the salary, such salary to be in proportion to the amount of honey examined, and in the end to be paid by the honey-producer, the buyer, or commission man who desires the National to guarantee the quality and purity of the honey. If necessary, doubtful samples of extracted can be analyzed, and, if pure, the certificate or brand of purity attached. And, by the way, we already have a chemist on the Board of Directors who is competent to make such analysis at a nominal price. (Just here I ought to say that Mr. Selser has never broached this subject to me in any way, shape, or manner.)

This same inspector might also attach his official grading on the various shipments that come in, and thus avoid a lot of trouble between producer and buyer. To have some expert grade as well as certify the purity of every lot of honey coming into Chicago would be worth much.

Perhaps this idea is too utopian to be carried into effect; but I have briefly outlined in a crude form the thoughts that have been revolving in my mind, and should be glad to hear from any one with suggestions. If a *practical* scheme can be evolved, I am satisfied that much good will be accomplished, and the officers of the National will be glad to adopt it.

COMB-HONEY MARKET; IMPORTANCE OF GETTING THE NEW PRODUCT ON THE MARKET EARLY.

If the reader will look over our honey quotations for the last three months he will see that comb honey has been getting dull, duller, dullest. The fact is, bee-keepers, not heeding our injunctions, have been dilatory about getting their last year's crop on the market. A great deal of it has been shipped *since* the holidays, when it should *always* be on the market *before*. Last fall there was not enough good honey to supply the market. All this spring there has been a glut and falling prices.

Mr. Selser, one of the principal honey-buyers of the East (and his statement is reinforced by the principal buyers of the country), urges the importance of shipping all Northern honey to market between Sept. 1 and Dec. 1. Clover and basswood should be sold as soon as taken off the hive. There is a time for a few days early in the season when the first new honey brings a fancy price. It is right here that the early bird —the bee-keeper—catches the worm.

Of course, just now is the dull or off season for comb honey; but it is duller than usual at this time of the year simply because producers were slow about getting their goods on the market. Then when they did ship, they shipped all at once and glutted the market. Many held back, thinking to get better prices; but in this they made a fearful mistake. There is a large amount of comb honey on the market now that came in too late to be sold. Some of it has been disposed of at a fearful sacrifice. We know personally of a number of commission men who have been roundly scored for selling at so low a price, when we know as a fact they did the very best they could with the market as it is.

Fancy honey sells almost any time at a fancy price; but this kind of honey is usually all disposed of before the holidays, before the second quality reaches the market, say in late winter or early spring, and then when poor prices are secured, if any at all, there is a kick, and the commission man has to take it fore and aft. We do not champion the honey salesmen, but bee-keepers need to be reasonable and fair. They need to wake up, as Mr. Selser says, and learn when is the best time to sell their honey.

It is not too early to try to impress the fact that all table honey should be sold *early*. Better employ extra help, get up a little earlier in the morning, and work a little later to scrape the sections to get them cased and off to market; and don't, *don't* ship your No. 2 (unfinished or stained sections) to the city after the holidays where they will glut the market. If possible, work them off around home. Sell among your neighbors. Peddle it out to people you know (at less price if need be) and explain to them that it is exactly as good as the fancy white honey in boxes that is so pretty to look at. I am not sure but it would be money in your pocket to cut out this inferior-looking honey, but good in quality, mix it with a first-class extracted, and sell it as bulk comb honey in tin buckets around among your neighbors who know you, and know that your product is the genuine article.

Perhaps some of our friends will think

we ought not to draw attention to a dull market for fear of depressing still more. It can't be much worse, and just now the truth should be known in the interest of the future's sake. Perhaps others may feel that we have an ax to grind as we are honey buyers. Our business in that line is very small, and we would be perfectly willing to give it up at any time. Our real interest is with the producer. If he can't get permanent good prices he has no use for bee papers nor bee supplies. Our ax is also the bee-keepers, and we feel it is *high time something was said, and forcibly too.*

BEE-KEEPING IN THE PUBLIC SCHOOLS.

MR. O. L. HERSHISER has been giving a series of lectures on bees before the children of the public schools of Buffalo. Beginning on the 28th of last April, and continuing till May 9, every school day, forenoon and afternoon, Mr. H. gave a lecture before a division of the seventh-grade children of the public scools. As only about 300 children could listen at a time, and there were 3500 in the seventh grade, it can be imagined that Mr. H. had to do a good deal of talking. That his lecture was highly interesting is evidenced by the numerous newspaper clippings that have been forwarded to this office. The headings in the papers show that the drones, and the stings of the bees themselves, come in for a large part of the attention of the children. It seemed very queer to them that the "papa bees" should be thrust out in cold weather after summer's laziness. The sting and its intricate mechanism, how the bee is supposed to sacrifice its life like the Spartan, was likewise enlarged on. The reports go on to speak of the shower of questions that were fired at the speaker at the end of his lecture, giving strong evidence that the children were interested, and fully understood the subject as it was laid before them. Indeed, one paper says that, so rapt was the attention, a pin could have been heard to fall at any time. At the close of each lecture a series of stereopticon views were thrown on the screen, illustrating different phases of the subject brought out in the talk. Some slides were borrowed from this office, and some others were made for the occasion.

I understand that these bee-lectures are to be a permanent feature of the Buffalo schools hereafter, and why not? If it is interesting and profitable to tell about bird life, why should it not be equally interesting and profitable to tell about bees, ants, and other insects? And if it is a good thing for Buffalo, why should it not be for other cities in the United States, and, for that matter, for every public school in the country? There are plenty of bee-keepers who are able to give interesting talks on this subject; but I fancy there are not many of them who would be able to lay it before children in such a way that a pin could be heard to drop during the entire talk.

Mr. Hershiser is to be congratulated on the success of the venture thus far; and his success will mean that the movement will probably be introduced in other schools. Bee-keepers all over the country can do a great deal by bringing the matter before boards of education. Tell them what has been done in Buffalo, and ask them to try the experiment just once. If the result is as successful as at Buffalo, the feature will probably become permanent in many other schools.

We have a very large collection of slides. Many of them, however, have been broken by being loaned out. In order to help along this laudable movement we have been thinking of having many duplicate slides made (to replace those that may be broken) showing bee-keeping from the popular point of view, so that the same can be used by lecturers at farmers' institutes and in public schools throughout the United States. We expect to have these slides under way very soon, and will sell them at a nominal price, or rent them, as may be preferred. It will probably be too late to introduce the feature in other schools this season; but if our bee-keeping friends do their duty much can be done to educate consumers on the general subjeet of how honey is produced, and why it can be produced in such large quantities, and yet be genuine bee honey, without any glucose about it. This is a very important matter, and I hope the National Association will in some way bring it before the public schools of the country at an early day.

The greatest difficulty we have to contend with now is ignorance as to the character and quality of our product. Over half the people suppose that comb honey is manufactured, and a large part of the other half believe that liquid honey is largely glucosed. The public need to be enlightened; and the quickest and surest way to do it is through the children. Get a child all fired up with enthusiasm, and he will tell his papa and mamma what wonderful things he has heard. Then he will want some pure honey, and his parents will have to get some, of course.

I do not know whether Mr. Hershiser started this movement or not. I should not be surprised if he did. He has been identified with quite a number of movements to educate the public concerning the wholesomeness of honey. He has been elected to high offices in the National Association and in State organizations; was superintendent of the honey exhibits at the Pan-American, and at the New York State exhibit at the World's Fair in Chicago in 1893 He has something over 400 colonies, and his crop last year was between 17,000 and 18,000 lbs. Well fitted he is professionally as a lawyer, and practically as a bee-keeper, to act as lecturer on bees before the public schools of Buffalo.

Mr. N. E. France, General Manager of the National Bee-keepers' Association, would make another good lecturer.

GENERAL
CORRESPONDENCE.

QUANTITY OR QUALITY.

A Strong Plea for a Better Article of Extracted Honey; Importance of Having All the Combs Sealed, and Left on the Hives; some Excellent Hints that will Bear Careful Reading.

BY DAN WHITE.

So far as saying any thing through GLEANINGS is concerned, I have been silent a long time. Possibly I can not now say any thing that will be of any benefit to bee-keepers and readers; but you know we differ, and have notions of our own. I have carefully noted from time to time theories, notions, and practical ideas advanced by the different writers. Valuable things have been brought out through the different writers, and we must admit advancement on many lines. So it may be well to let all have their say. Even if some of us are cranks, may be we can find something good in what they have to say.

Of course, I never thought honey could be put in paper packages; but that very thing is being done, and it has been said right out plain in print that the honey put in paper must be well ripened.

Now, if consumers will only catch on to this (and I believe they will) it will be a grand step in the way to educate the masses that a high-grade honey *only* can be put up in paper, and the thin *unripe* stuff must be put in glass or tin. What I want to see is some way devised for extracted honey to stand up and speak for itself the same as a section of No. 1 comb honey shows up when in the market.

I will go back and say something about my experience the two past seasons. All the surplus honey of 1902 came in in nine days, and in 1903 in about ten days. Now, if quantity had been my aim I should certainly set the extractor in motion; but as quality is my motto, first, last, and all the time, this honey was left in the hives as usual until August or September; but as these months gave so few warm days suitable for extracting heavy honey, the most of the work was done in October.

I hope no one will think I save labor by leaving my honey in the hives in this way. No, sir; I go through all sorts of trials and inconveniences. Uncapping combs of thick waxy honey, cross bees and robbers (especially the two past seasons), on the alert for any move made about the apiary; but my main desire was gratified to know my customers *as usual* would get honey of the highest quality, or, in other words, as good as liquid honey can be. Now, then, had I set the extractor in motion during this rapid flow I could have increased my yield in bulk and pounds. How easy this would have been! no robbers, no uncapping, thin honey, every thing lovely. By extracting late, as is my custom, I estimate a shrinkage of at least one third, principally by evaporation.

I have heard it advocated that even comb honey, by leaving it in the hives several weeks, improves in quality, and I believe it. I go back to December, 1902, page 1019, and repeat the trials of a Wisconsin bee-keeper who produces more honey than he can sell. We note his experience with commission men, how he works his home market, and is at times so disgusted and discouraged that he feels like throwing his crop outdoors. He expects some one will endeavor to soothe him by advising and talking about over-production. He claims a lack of confidence in the purity of what we offer for sale. He also notes a glimmer of light begins to illuminate the future of the bee-keepers, and that is the projected honey-producers' association.

Again, on same page, but by another bee-keeper, he says wholesale marketing will be the only real aid through organization, or devoting our time to our home markets.

We now note again some things said on page 1017 at the Chicago and Northwestern convention, and that is, co operation among bee-keepers for the purpose of selling honey. All agree that, if comb honey is put upon the market properly, there will never be any trouble in selling it. Then, again, they go so far as to say the world has never seen the time when there was too much *fancy* white comb honey; but it is the liquid honey that is the drag, and it is *this* honey that needs help in selling. Now, I feel like rolling up my sleeves and taking the attitude of a prizefighter. Don't you know if liquid honey had always been put upon the market properly there would never have been any trouble in selling? Don't you know this big world has never seen the time when there was enough *fine fancy* white liquid honey? Don't you know there are some bee-keepers scattered all through the country, putting honey on the market that is just as far from the real thing as soup made from a rooster's shadow is from the *real* thing? Talk about educating the people! You might as well try to educate a calf to climb a telegraph-pole tail foremost as to keep on in the same old way with liquid honey. There are many wrong ways and only one right way to do almost any thing. If I ever agree with co operative associations or individuals they must go at this thing in earnest and look after *quality* in liquid honey. They must say to every man who extracts any thing and every thing from the brood-nest during a rapid honey-flow in order to stop swarming and give bees room, "We will not help you sell such stuff; but we *will* do every thing in our power to prevent your selling it."

But here comes a chap who says, "My honey was partially capped and ripened before extracting." They must say, "No, sir," to him. "We are going at this thing right now, and we will have nothing to do with a liquid honey that is not just as good in quality as it can be."

This very way I am writing about has gradually educated the people in this section of the country, so I consider the disposing of 3000 or 4000 pounds a very small matter. I have seen the time when I was pretty well discouraged peddling around from house to house; but the time finally came when I had them educated so far as quality is concerned.

Now, I wanted to do some more educating, and that was that they must buy a 12 pound gallon can, and I dropped the small packages. Now I can sell a customer 12 pounds just as easily as I once did a small tumbler of honey; and here is a point worth looking after. Don't you know many have been educating the people that honey is a luxury by using bottles and tumblers, in this way many times making extracted as dear as the best comb honey? One of these packages would find its way in a family. It was soon licked up by the children; then it would be a long time before any more honey found its way in that house. You see, I want to find a market that will dispose of large quantities for my brother bee-keepers. What we want is to dispose of large quantities of honey in cities and villages where at present very little honey is consumed. I will now give my plan. I should certainly adopt it if I had a large surplus. I would get a small gasoline-stove, and learn how to make small biscuit. I would go to city No. 1, call upon a leading grocer, and ask him to let me start him in the honey trade. With his consent I would start my baking-oven. Then every customer would be invited to eat biscuit and honey. While they were eating, of course I would be talking. I would tell them we were going to have this very quality of honey here for sale in gallon packages; give them the price, and show them that this was the way to buy cheaply, and that they could afford to use it as liberally as any thing they use upon their table. I should certainly make some sales right on the spot. They would get suitable reading-matter from me, telling them all about liquid honey. I could tell them to let their neighbors know all about this good honey, and just where to find it, and give them to understand that they could always depend upon this fancy grade of honey sent direct from the bee-man to their grocer. I would label it "No. 1 Fancy Extracted Honey."

Possibly I would stay in this place two or three days, when I would be ready for the next place.

Now, when the bee-keepers organize or co-operate they can put a man on the road. Find out the bee-men who want help, and those who put up only No. 1 fancy honey, then secure a market for his product Commissions will not be much when sold in this way. Then after the first season, markets would be established for the following season.

Now, Mr. Editor, I have said much more than I expected to; but I want to add that I have, from time to time, sent for honey that cost me double what it was worth, simply to satisfy myself what quality of honey was being offered by some who have more honey than they can easily dispose of; and for years past I have never stepped into a grocery where liquid honey was in sight when I did not sample it. I am glad to say that I have found some No. 1, but sorry to say more than half was all the way from medium good to unripe stuff unfit to be called honey.

Is this way going to educate the masses to eat honey? I fear not; and can our ways be made better?

New London, Ohio.

[I wish our friends could see Dan White and hear him talk, for he writes just as he talks. He is one of those sturdy practical dollar-and-cent bee-keepers whom it is a pleasure to meet. He does not write very often; but when he does he gives us something that is like his honey—*first class*

It is too true that much of the honey that goes on the market is not ripened as it ought to be. The poor quality of some of the pure honey, and the vileness of the glucosed imitations on the market, have done much to disgust people with extracted honey.

It is E. D. Townsend, of Michigan, who preaches and practices the same thing taught so forcibly and plainly by Mr. White; namely, that honey must all be sealed and left on the hives until it attains that richness and flavor that is possible only when the bees have had time to ripen it as nature has designed they should. The extra price paid more than pays for the bother.

Once in a while one of our correspondents writes an article that is so true and good that I feel like asking our readers to "paste it in their hats." This is one of them. Yes, I propose having it struck off in pamphlet form to be sent out with every extractor made by The A. I. Root Co.—ED.]

THE SHALLOW HIVE.

An Interesting Discussion of this Question; Shallow Hives and Double Brood-chambers; a General Rejoinder to Critics.

BY W. K. MORRISON.

In spite of all that has been written referring to the shallow hive, there are still some in the dark as to what it really is. Mr. Gill, for example, thinks it is too small, when, as a matter of fact, he uses a smaller one, in his own apiary. Mr. Greiner evidently thinks I am advocating double brood-chambers, which is very far from being the case.

Shallow hives are nothing new. The first I ever saw was about 35 years ago; but it was actually invented in the 18th century—roughly speaking, 150 years ago. It was hexagonal in shape, and six or seven inches deep. It was a close approximation to the modern Heddon, almost the only difference being the frames were immovable. Such hives are still made, but with the frames movable, so there is nothing new under the sun. I tried the Heddon hive, but soon decided that a single brood-chamber was less work for me. Besides, there was the objection of expense. A double brood chamber costs just double the cost of a single one, and it is the same with regard to supers. I believe with Rambler that the Heddon hive contains some excellent features, and is susceptible of considerable improvement; in fact, would stand unrivaled. The Bingham hive is a good one, and any one interested in this discussion can not do better than read and reread what Mr. Bingham says about his hive. I know what he says is true.

One of the first attempts to grapple with the shallow hive idea was made by no less a personage than A. I. Root. If Mr. Greiner has the back volumes of GLEANINGS he will find this curious hive illustrated on the front page of the issue for Sept., 1876. I have tried a similiar hive of my own construction, and found it to work all right, and for some purposes it is simply perfect. Perhaps if I had a hive-factory at my command I could yet perfect this hive; but I haven't, so we will pass it by to consider more successful ones. Dr. Tinker's Nonpareil is also a shallow hive, and a very successful one for comb honey production. Then the Danzenbaker hive is an excellent example of the shallow hive—one to conjure by. Only recently I saw it in use away down near the equator, in Berbice, turning out the most beautiful sections from the nectar of the cocoanut-blossom. And there are other shallow hives—for example, the Ideal super makes a splendid shallow hive worked on the Heddon plan—in fact, none better for hot countries, in the hands of a professional. Several things have militated against the success of the shallow hive. First of all is the notion that bees winter better in a deep hive. In my experience there is not the slightest foundation for such a belief. It is "notion," and very little else. Another "notion" is the notion that starters must be used with a hive run for comb honey, whether the hive is shallow or deep. Putting starters in any shallow hive means pollen in the sections more or less. There is no necessity for "starters" in a shallow hive, hence any criticism based on the use of starters is worthless.

To get the full value out of a shallow hive one must observe certain points usually ignored by the advocates of deep hives. In the ordinary Langstroth hive with Hoffman frames certain losses occur that must be avoided in a shallow hive. First, there is the loss caused by not having the combs securely attached to the bottom bar. This loss usually amounts to a tenth of the total capacity of the hive. By spacing 1¼ inches from center to center of the frames we can accomplish another economy, say 20 per cent of the hive, getting ten frames in an eight-frame hive or 12 in a ten-frame hive. By this means we can cut down the height of a hive 30 per cent, and still have a hive large enough for all practical purposes. Some may say that a 1¼-inch spacing is impracticable, and that is so if Hoffman frames are used, for the Hoffman frame is not by any means accurate. It is accurate when first made; but later on, when the edges have accumulated an amount of propolis, they are very far from being accurate, and that is the reason why a wider spacing is necessary with all ordinary frames. The Heddon and Danzenbaker frames can readily be spaced 1¼ inches apart, with considerable advantage.

The next step is where I differ radically with Mr. Danzenbaker, and that is to have all chambers, brood, extracting, and section comb, one size. This is one feature about the Heddon worthy of emulation. All the parts of that hive are alike. There is considerable economy in having all bodies alike in dimensions, and it simplifies the work of a large apiary. Another great gain can be made in having only two stories instead of three or four. The Heddon hive has four chambers when two would do equally well. In designing the Danzenbaker hive it would have been easy to have made both the honey and the brood chamber of the same demensions, simply by making the super a little deeper and the brood-chamber a little shallower. I think a little attention to these details would give us a truly scientific hive, resulting in a complete mastery over the bees, and yet allowing us an extremely simple hive at little expense.

I do not favor home-made hives, for it is an almost invariable rule they are not accurate enough for high-class bee-keeping, and we need even greater accuracy than we have at present. Similiar economies can be effected in section supers, but that is another story. Simplicity is a grand thing in bee-hives, and we may always strive for it. I remember the time when hives were much more complicated than now, and greater simplicity is still possible in my opinion. The super is a strikingly simple arrangement which can be utilized to an even greater degree than at present. Nor do all bee-keepers realize the wonderful possibilities latent in good Weed foundation. By cutting down the drone-laying capacity of our queens, and holding back the swarming instinct, we can do much to improve the present breed of bees. Accurate hives, combs, etc., all make for the bee-keepers' millennium, and this is the reason why I try to discourage the use of home-made hives, starters, etc. Artificial fertilization would be another great step in advance, and I hope its day is near.

We are still very far, in my opinion, from reaching the perfect stage of bee-keeping; and such things as the use of starters, brush swarming, and inaccurate home-made hives, are steps backward rather than forward, in my opinion. I do not favor the soap-box hive; on the contrary, I like my hives to be as accurately gauged as the slit of a spectroscope or the tube of a compound microscope.

[I wish to make one correction; and that is, that the Heddon hive has a brood-chamber of one depth and a comb-honey super of another depth. The super as originally put out by Mr. Heddon was of an entirely different construction — shorter on the inside dimensions, and made of thinner stock. If the tall section had been in vogue at the time Mr. Heddon put out his hive, in 1885, it is possible he would have made the brood-chamber and section-super of just the same depth. Mr. Danzenbaker originally did have his hive this way; but the more he experimented, the more he became convinced that a brood-nest just deep enough to take in 4×5 sections was a little *too* shallow. He therefore settled on something which is a compromise between Langstroth depth and the five-inch super section depth.—ED.]

A HIVE ON SCALES.

A Big Swarm; the "Witchery of Kodakery."

BY F. W. HALL.

The General Manager's report makes me say I began the season the first of May with 90 colonies. I afterward took in 7 colonies besides to work on shares for a neighbor, where I established an "outer yard" In reality I had but 85 colonies at the beginning of the honey-flow, which opened up almost within a fortnight, May 22 or 23. Between the 1st and 22d of May was bad weather to keep bees from dwindling. From that on they did good work despite almost daily downpours of rain; but between showers the bees rolled in the honey. There were three swarms yet the 27th or 28th of June that were scarcely bigger than a pint cup, which, had I not known that it was not for want of a good queen that they were that way, I would not have tried to get them through. They were united to swarmed colonies, old combs of brood, and gave excellent account of themselves; and, by the way, they were all daughters of the old queen I got from you three years ago last July. I have some 50 or more daughters of hers, and they have shown more or less of the vim of their mother, which was the queen that gave me 290 sections of honey in 1901 while my average was but 88 lbs., and no more pampering than the others got. In 1902 she did good work; but I lost my record-book — that is, some one borrowed (?) it (when I was not looking), and I can't give you the record. In 1903 she was not kept on the scales, but did fine work until she swarmed out July 20. She was caged, and the swarm allowed to return to the old hive, and she was put on to other brood, and in some eight or ten days afterward she came out with another swarm, hiving her with only a part of the bees on other brood, but lived only long enough to be superseded by one of her own daughters.

By pruning the combs of cells I have been able to get a good many daughters each season from her, and, as stated before, all have given good account of themselves. Talk about that old queen of yours not being worth $200! Why, I believe this one *I* have (which, by the way, was one of her daughters) has been worth that much to me already. I kept this old queen on scales for two summers, weighing her three times a day during 1901, and once a day (at evening) during 1902. The 1901 record is in the *American Bee Journal*, page 579, 1902. It was borrowed(?), as stated above, hence I can not reproduce it. The year 1903 is as follows:

May 23, rain, sunshine; rain, sunshine; weight 58 lbs.

May 24, rain, sunshine; rain, sunshine; weight 62 lbs.; gain 4.

May 25, cloudy; added 10-lb. super; fair; weight 75¾ lbs., gain 3¾.

May 26, rain; cool; weight 75¾.

May 27, cool and windy; cloudy; weight 75¼ lbs., loss ½

May 28, cool; weight 75 lbs., loss ¼.

May 29, cool, windy; cloudy; weight 73½ lbs., loss ½.

May 30, rain; weight 73 lbs., loss ½.

May 31, rain; weight 72 lbs., loss 1.

June 1, rain; cool; weight 71 lbs., loss 1.

June 2, cool; weight 71 lbs.

June 3, hazy; warm; weight 70 lbs., loss 1.

June 4, fair; weight 70 lbs., loss 0—0.

June 5, fine; very fine; weight 69½ lbs., loss ½.

June 6, very fine, added 10-lb. super; weight 80½ lbs., gain 1.

June 7, warm; fine; weight 79½ lbs., loss 1.

June 8, cool rain; rain; weight 79½ lbs.

June 9, rain; rain; weight 79½ lbs.

June 10, clear; cool; weight 79¼ lbs., loss ¼.

June 11 cold rain; clear; weight 79 lbs., loss ¼.

June 12, frost, cool; warmer; weight 79½ lbs., gain ¼.

June 13, clear; warmer; weight 79½ lbs.

June 14, warm; weight 80¾ lbs., gain 1¼.

June 15, warm; warmer; weight 83 lbs. gain 2¼.

June 16, warm and dry; weight 85 lbs., gain 2.

June 17, warm and dry; weight 88 lbs., gain 3.

June 18, clear, and heavy rain at night; weight 91¾ lbs., gain 3¾.

June 19, foggy; warm; weight 95 lbs., gain 3¼.

June 20, fair; hazy; weight 97 lbs, gain 2.

June 21, rain all day; weight 96 lbs, loss 1.

June 22, fine bee day; weight 100½ lbs., gain 4½.

June 23, fine bee day; weight 107¼ lbs., gain 6¾.

June 24, 2 swarms; added 9-lb. super; weight 115 lbs., loss 1¼.

June 25, cloudy; clear; weight 120 lbs., gain 5

June 26, very warm and clear; weight 130 lbs., gain 10.

June 27, warm; clear; weight 133 lbs., gain 3.

June 28, warm and no wind; weight 141 lbs., gain 8.

June 29, warm; heavy rain; weight 145 lbs., gain 4.

June 30, very warm; three swarms; temperature eighty-seven degrees; weight 147½ lbs., gain 2½.

July 1, warm; clear; temperature eighty-five degrees; weight 150 lbs., gain 2½.

July 2, high wind from south; temperature eighty-two degrees; weight 149 lbs., loss 1.

July 3, cool wind from northwest; temperature sixty-five degrees; weight 148½ lbs., loss ½.

July 4, cloudy; shower; temperature sixty degrees; weight 149 lbs., gain ½.

July 5, warmer and clear; five swarms; warm; weight 152½ lbs., gain 3½.

July 6, high wind from south; two swarms; weight 152½ lbs.

July 7, windy but warmer; three swarms; temperature eighty-four degrees; weight 157 lbs., gain 3½.

July 8, warm and still; two swarms; temperature seventy five degrees; weight 160 lbs., gain 3.

July 9, warm; shower; four swarms; weight 165 lbs, gain 5.

July 10, cloudy, shower; two swarms; clear; temperature seventy-five degrees; weight 167¼ lbs., gain 2¼.

July 11, hot, shower; shower; cloudy; temperature eighty degrees; weight 172 lbs., gain 3¾.

July 12, shower; three swarms; temperature seventy five degrees; weight 172 lbs.

July 13, clear and warm; four swarms; temperature sixty-five degrees; weight 174 lbs., gain 2½.

July 14, a 10-lb. swarm issued from scales colony, and hived on empty combs, and two supers; cool, windy; two swarms; warm; weight 88 lbs.

July 15, cloudy; fair; cooler; weight 91½ lbs., gain 3½.

July 16, ideal bee day; temperature ninety degrees; weight 98½ lbs., gain 7.

July 17, rain and cooler; weight 98½ lbs.

July 18, clear and hot; three swarms; hot;

temperature ninety degrees; weight 104 lbs., gain 5½.

July 19, clear and hot; seven swarms; no wind; weight 112 lbs., gain 8.

July 20; windy but fair; four swarms; weight 113 lbs., gain 1.

July 21, warm and still; five swarms; temperature eighty degrees; weight 120 lbs., gain 7.

July 22, cloudy, cool; two swarms; warmer; weight 121 lbs., gain 1.

July 23, clear sky; three swarms; warm; weight 129 lbs., gain 8.

July 24, clear, very close; three swarms; warm; weight 134 lbs., gain 5.

July 25, hazy, hot; two swarms; temperature ninety-five degrees; weight 139 lbs., gain 5.

July 26, cool; rain at night; warmer; weight 140 lbs., gain 1.

July 27, cool; warmer; weight 142½ lbs., gain 2½.

July 28, cloudy; weight 142½.

July 29, cool and clear; weight 143 lbs., gain ½.

July 30, cool and windy; honey taken off; weight 84 lbs.

July 31, cool and cloudy; weight 83 lbs., loss 1.

Aug. 1, cooler and cloudy; rain all night; weight 83 lbs.

Aug. 2, fine bee day; weight 87 lbs., gain 4.

Aug. 3, fine bee day; weight 90 lbs., gain 3

Aug. 4, fine bee day; weight 91 lbs., gain 1.

Aug. 5, fine bee day; weight 92 lbs., gain 1.

Aug. 6, cooler but clear; weight 93½ lbs., gain 1½.

Aug. 7, warmer day; added 25 lbs. cull sections; weight 119½ lbs., gain 1.

Aug. 8, cool and cloudy; rain; rain at night; weight 118 lbs., loss 1½.

Aug. 9, cool; clear; weight 118 lbs.

Aug. 10, cool; cloudy; weight 119 lbs., gain 1.

Aug. 11, cool; warm; cool; weight 120½ lbs., gain 1½.

Aug. 12, quite cold all day; weight 120 lbs., loss ½.

Aug. 13, cool; warm; cool; weight 120 lbs.

Aug. 14, rain; hazy; one swarm; weight 120 lbs.

Aug. 15, cool; one swarm; warmer; weight 121 lbs., gain 1.

Aug. 16, fine bee day; weight 127 lbs., gain 6.

Aug. 17, fine bee day; weight 132 lbs., gain 5; one swarm.

Aug. 18, warm; hot; shower; weight 134½ lbs., gain 2½.

Aug. 19, warm and fine; weight 139 lbs., gain 4½.

Aug. 20, warm and fine; one swarm; weight 142 lbs., gain 3.

Aug. 21, warm and fine; weight 145 lbs., gain 3.

Aug. 22, warm and fine; weight 147 lbs., gain 2.

Aug. 23, cloudy; cool; warmer; weight 148 lbs., gain 1.

Aug. 24, warm day; one swarm; honey off; weight 95 lbs.

Aug. 25, warm day; one swarm; weight 95 lbs.

Aug. 26, warm day; weight 95 lbs.

Aug. 27, rain all day; rain all night.

Aug. 28, rain all day.

Aug. 29, still raining; cool

Aug. 30, clear; fair; warmer; weight 95 lbs.

Aug. 31, clear; fair; warmer; weight 98 lbs., gain 3.

FINE OPENING FOR HONEY.

Sep. 1, very warm all day; weight 101 lbs., gain 3.

Sep. 2, very warm all day; weight 102 lbs., gain 1.

Sep. 3, warm; cool; cloudy; weight 103½ lbs., gain 1½.

Sep. 4, rain all day; weight 103 lbs., loss ½.

Sep. 5, rain; cold; weight 102½ lbs., loss ½.

Sep. 6, rain; cold; weight 102 lbs.

Sep. 7, weight 103½ lbs., gain 1.

Sep. 8, weight 104 lbs., gain ½.

Sep. 9, weight 103 lbs., loss 1.

Sep. 23, no weights were taken here; weight 101½.

Sep. 24, heavy frosts; swarms all off; weight 101¼.

They were on the scales 109 days, out of which they made a gain in weight over the previous day of 63 days. Days in which they lost weight, 22. Days in which they held their own, 19. Days not weighed for several reasons, 5. On May 25, June 6 and 24, and Aug. 7, there were added 10, 10, 9, 25=54 lbs. in weight of supers and sections, to weights, and July 14 and 30, Aug. 24, Sept. 24, there were taken away 86, 59, 53, 39=237 lbs., a difference in favor of gain of 183 lbs. The loss column figures 16½ lbs., and the gain column is 211¾—a difference of 195¼ lbs., a difference of 12¼ lbs., which may have crept in through the exchange of hive-bodies and empty sections at the time of swarming, July 14.

There are other points in these weights and weather conditions worthy of pointing out, but my article is already quite long for a "sapling" like me, so I will leave it for the reader to study out.

My first attempt at kodakery was made on the trip to and from the Denver convention. I have spoiled lots of films since, and don't know it all yet; but herewith I send you a few "snaps," mostly of my bee-yard and bees.

I will begin at Nos. 1 and 2 by saying the swarm of bees is the same one in both cases. It weighs exactly 12½ lbs., and was the product of one queen. The hive from which they issued was a ten frame one, with four supers on. It seemed full of bees, yet often the swarm went out. The little five-year-old girl in Fig. 1 is Luella, my youngest of three girls, which is all the family we have. The boy (five years) in Fig. 2 is Reymon Meyers, a neighbor's boy. I did not intend to appear in the picture; but the weight of the bees was too much for either to hold.

Figs. 3 and 4 show our middle girl, Annetta, of 11 years. The view where she is sitting on the hive was taken with the view of getting a picture of the queen, which was in plain view at the time of pressing the button; but the print does not show her, so far as I can see with a low-power magnifier. The colony back of her on the scales is the one from which the record of weights was taken in 1903, and was a daughter of the queen I got of you (in 1901, I think it was).

Fig 5 is my brother, Sam Hall, one of three brothers, who claims to have spoiled a good deal of hardtack forty years ago; and if he had been as good at shooting the enemy as he was for stowing away edibles (honey especially), the war would not have lasted nearly as long as it did.

I am very busy, and have written this hastily. I hope to be over to meet you all at St. Louis this fall, but I am afraid I shall have to "dig up" the wherewith from some other source than the bee yard. However, I may be surprised again, as I was last year.

The winter's loss was very heavy, and only weaklings left—95 out of 111 colonies.

Hull, Iowa, May 9.

[In order to understand this matter better, the reader will observe that the weather-record is for the forenoon and afternoon, the periods being separated by a semicolon. Thus, the record for May 23 means that it was showery at intervals, both forenoon and afternoon that day, with sunshine between. Then follows the weight of the colony and hive, with daily gain and loss, as the case may be. It was found to be impracticable to put this record in columns, but we believe it will be perfectly intelligible with this explanation.

This is a very interesting table, and I could only wish that friend Hall had only amplified a little more on the weather conditions and how they affect the amount of honey gathered per day. In a general way I glean this: That from warm to hot weather is favorable for nectar secretion providing the soil is moist. But the conditions of soil are not mentioned in the table; but I know it has a bearing. We may have the temperature ideal; but unless the ground is right, there will be no nectar. I observe, further, that cool or cold weather checks or stops nectar secretion. I was surprised, though, to see that the records for the honey crop are no different after swarming. In some parts of the country, at least, swarming takes place when the flow is light, or stops altogether when the flow is heavy.

After a heavy rain we have been in the habit of assuming that there will be no nectar secretion for a few hours; but the scale weights here given do not bear out this assumption.

Another interesting feature is that the season is very prolonged in friend Hall's locality. In and about Medina, most of the honey would come in in two weeks as a rule; and this is the condition that prevails in most of the Northern States where clover is the main dependence.

Mr. and Mrs. Hall were in the bee keepers' car that went to Denver when the National convention was held there two years ago. I well remember they had a kodak to pick up scenes through the country. I am sorry for the man who does not enjoy a kodak, for he will miss a great deal of pleasure in after-life that he might have had by looking over the scenes of the years gone by; for they bring back many a pleasant memory. We have kodak pictures scattered all over the walls of our rooms upstairs, especially in the boy's room. He is shown at all ages, at his worst and at his best. Then there is another collection that shows my bee-keeping trips; and each picture recalls a little history of some event or place.—Ed.]

PECULIAR INSTINCTS OF BEES.

The Importance of Getting Them Started Right; a Very Interesting Article.

BY J. E. CRANE.

On page 913, Dec. 15, 1898, the editor says, in his "Symposium on Fences and Plain Sections," "Last year we sent out a few of our fences with spaces less than 2/12 (the width of perforated zinc). When the bees could not go through, we learned early in the season that they were inclined to gnaw the space wider; and when *once started* to gnawing they would keep it up till the space would be widened to 3/8 or even 1/2 inch."

When I first read this paragraph it seemed a very proper way, not only for accounting for the gnawing of separators or fences, but also, if true (and there was no reason to doubt it), of accounting for some other things. "When *once started* to gnawing they would keep it up." Exactly! There is a good deal in getting *bees started* in either a good or a bad way. I was the more impressed with this when I looked over a large number of fences of my own, used during 1898, to see what I might learn. Instead of using all my fences with cleats, I made a large number with small wooden pins, driven through the slats to engage the edges of the sections. A few of these were made by boring a 5/16 hole through a piece of lumber before slicing it up into slats. As I used thin pegs or pins about 3/8 wide by 1/16 thick, it left a little opening on each side of the pin through the slat—see photograph.

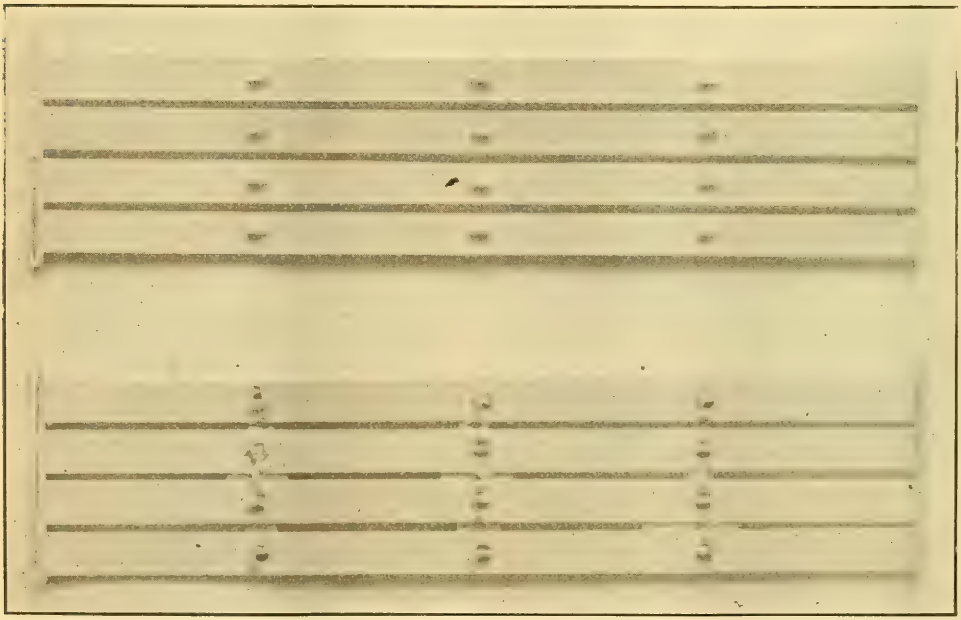
Now, instead of the bees gnawing these holes larger they proceeded to stop them up with virgin wax, evidently early in the season; and when once the bees *got started* they kept on, and not only filled up every hole each side of the pin projections, but between the edges of the slats, and also a good deal between the slats and edges of the sections. The photo shows how it was done if you look closely.

Very few others out of several hundred, so far as observed, were filled up in this way with wax. The small holes started them; and when *once started they kept on* away beyond what reason or good judgment would dictate.

Sometimes a colony seems almost to be governed by reason; again, by instinct; and, again, by impulse or passion.

Let us look further at this instinct or impulse of bees that, when *once started* in any given line, keeps on. Those who handle bees know how apt a colony of bees is, if it once begins to sting, to keep on. If a colony has killed a young queen I find it quite difficult to introduce another; even when you give it brood with which to rear its own queen it will sometimes keep on in its queenlessness. If a colony gets started early in the season in surplus boxes it is more likely to surpass others that hesitate before they go into supers.

If I find one section in a super with pol-



len in it I am quite sure to find several. Alas! they *got started* to storing pollen in the wrong place, and kept on.

One colony gets started to gathering propolis, while another may be gathering honey; and it does not stop when every crack and crevice is filled, but keeps right on smearing every joint and frame and section; and even the combs in brood-chamber and super come in for a share of this sticky substance.

When once a colony gets started or prepares to swarm it requires vigorous treatment to turn it from its purpose. I have taken away all the brood and honey — yes, and every brood-comb from a colony, and yet it would swarm.

This impulse is not always bad by any means. During the season of 1897, when clover was in full bloom, and honey very abundant, and most hives had combs begun in supers yet but little finished, the flow of honey was from some cause (probably from too much rain) suddenly cut off; but the bees kept on filling their supers with honey from their brood-chambers, for some time after they could gather much from the fields.

But there is another line along which, when bees once get started, they are apt to "keep it up," and that is the way they finish off their combs. On the same page from which I quoted at the beginning of this article, I read, "I picked out two samples of sections from Martin's honey; for I observed that, if one section in a case was ridged, all the sections in that case would show somewhat the same fault, thus indicating that some bees are more inclined to ridge than others." Just so; and so some colonies are more likely to finish their combs in other ways when once they get started; as, for instance, sealing their surplus combs next to the wood. If we find one comb in a super finished perfectly we are likely to find most of the combs in the same super sealed in the same way; or if we find the first comb we take out not sealed around the edges, we are not likely to find many that are.

On page 910, of the same issue, Mr. F. L. Thompson, in comparing the old style of sections with the plain sections, says: "So far we have had no experimenting lately published that was worthy of the name. Both kinds of sections to be compared should be in the same super."

However it may be in other parts of our broad country, I can not tell; but I feel very sure that, in this section, such a method of experimenting would be very far from satisfactory, from the fact that, as bees begin to finish, they are likely to continue without much regard to our notions as to how it should be done, or whether the sections are plain or otherwise. Suppose we have two or more hives with supers that have half of their sections on one side plain between fences, while on the other side are old-style sections with solid separators, narrow enough so bees can pass both above and below them into adjoining sections. The bees will most likely finish all with but little difference. Should the bees begin to finish on the side with old sections it is not probable that the plain sections will be finished much better. Or if the bees commence to finish on the side with plain sections first, they will be likely to finish those on the other side in the same way.

As was said of Mr. Martin's honey, so of these: As you find one you are likely to find the rest in the same clamp. But if we fill one or two hundred clamps with one kind of box or separator, and as many more with another kind, and place them on our hives just as it happens, we shall be much more likely to secure results that will be more satisfactory. It is not very difficult to average the different lots after they are ready for market.

Again, if we feed bees with cappings or other refuse honey, and they get "started" on it while yet there is honey to be had in the fields, they are ready to leave field work for this artificial feed, to their own disadvantage.

Once more, if a colony gets "once started" to robbing we all know the result. They are apt to leave honest industry and follow the bee-keeper from hive to hive; and every time a comb is exposed they pounce upon it, making more trouble than they are worth; and when "once started" they are almost sure to "keep it up."

From the foregoing will be readily seen the importance of getting bees started in best way, and keeping them from getting started wrong.

Middlebury, Vt.

[I doubt not that your article will recall to the minds of many of our practical bee-keepers many cases similar to those to which you allude. In the production of comb honey I soon found that it was *very* important to get the bees started early in the supers; that, when once started, the colony would go on working without clustering out, and pile in the honey as long as there is any to be obtained. A colony that fusses around, has its brood-nest packed full of honey, and will not go into the supers, will, unless made to go to work somehow, loaf a good part of the season.

Again, if a colony is once stirred up to sting, it is liable to be for ever after nervous — at least so far as I have noticed. We had once one colony that was near the driveway, very peaceable; but after it was bumped by a wagon-wheel it was so obstreperous that we had to move it away from the roadway. In a similar way we have a path right down in the center of our bee yard. If a colony on this path once gets used to the walking back and forth, it will give but little trouble the entire season.

In this way we might multiply hundreds of instances. This same rule that applies to *Apis mellifica* applies with even more force to the human race. The young man who starts out right, keeping good company, and is never too big to go to church and

Sunday-school, has a very much better chance in life than the other one who thinks it is "smart" to be "out with the boys nights" and "have a good time." He is pretty apt to keep on being out all his life when he gets started to doing so. They say it does 'em no harm, and if it does they can quit. Few there are who *begin* sowing "wild oats" quit, sober down, and make men that are an honor to community.—Ed.]

Heads of Grain
from different fields

FENCES OR SEPARATORS WITH TRANSVERSE OPENINGS.

Mr. J. T. Calvert:—In April 15th Gleanings I note that you advertise the Hyde-Scholl separator or *fence* as you are pleased to call it. In the summer of 1898 Mr. Scholl and myself experimented with a great many forms of separators, with the result that we brought out the separator with both longitudinal and transverse slots as has been illustrated. For the old-style 4¼ section the problem was easy, and satisfactorily accomplished with our No. 1 separator, and open four-side sections. For the Ideal section we added wood spacers, which proved unsatisfactory, and we then tried and successfully used tin spacers. For various reasons I recognized that the 4×5 section was in the lead, and I last year went about to adapt our separator to the 4×5 section. I was working on the problem when Mr. Calvert paid me his visit. I showed him my plans, and he suggested other slight changes, the principal one being the use of tin on the upright slots. As the separator stands, it is well adapted to the Danz. super arrangement, and it can be easily adapted to other arrangements of the 4×5-section super. When we have further improved and done away with the wood cleats at the ends, and arranged for passageway for end sections, as well as middle, we shall have it right. We are figuring on a modification of the Danz super that will accommodate this idea. As the separator stands, it is by far the best separator or fence on the market.

The superiority of the separator rests mainly in the upright slots and the manner of spacing. By this arrangement we do away with the wood-cleat spacers, which invariably cause the sections to be rounded off on the edges as well as promoting pop-holes. With this separator honey is finished off clear up to the wood, and there are few if any detestable pop holes. It is needless to say that the arrangement also promotes freer communication and better super work generally.

Mr. Calvert is wrong in calling this a fence, for it is not a fence in any particular. It is a separator, pure and simple, and as such it should be called a separator, regardless of whose name you attach to it.

From reports it would seem that Mr. Scholl and myself are not the original inventors of this principle applied in the separators; however, certain it is that we were not aware of such previous invention. Such, if any, had not been heralded before the bee-keeping world. We are the first to make known to the bee-keeping world generally the principles applied in our separator, and as such we demand full and fair credit for the same.

It is a foregone conclusion that our principles will be applied to all separators in the future, and as such we demand that such separators be known as the Hyde-Scholl.

This separator, and the honey produced with the same, will be on exhibition at St. Louis, and we hope that as many bee-keepers as possible will examine and criticise the same. We believe it is a good thing, and are anxious for the bee-keepers to have the invention for what it is worth.

Floresville, Tex. Homer H. Hyde.

[It is no doubt true that you were not aware of any previous invention antedating the Hyde-Scholl separator; but when you say that you were the "first to make known to the bee-keeping world generally the principles applied in our separator" you are not quite correct. In the *Bee-keepers' Review* for December, 1897, a separator is shown and described by L. A. Aspinwall, of Jackson, Michigan, which embodies *all* the principles in your separator save one—that of using horizontal slots. This article of Mr. Aspinwall's was the result of mature thought that had been worked out some time before—how many years or months I do not know; but I do know that he had used the plain section some eight or nine years before any general mention of them was made in the bee papers; and the probabilities are that he had used his separator for nearly that length of time. The Aspinwall device has the transverse perpendicular openings opposite the uprights of the sections on each side, cleats, or projections on the separator, and the openings at the ends of the super exactly the same as in the Hyde-Scholl fence. In this article he goes on to give his reasons for such openings very fully. Your article describing the Hyde-Scholl fence did not appear until just about a year afterward, and that was in the December 15th Gleanings, 1898. Along about the same time, Mr. J. E. Crane, of Middlebury, Vt., was working on the same problem, and on December 24, 1898, filed an application for a patent covering the raised projections on different planes in a separator or fence. The patent was finally allowed, May 2, 1899. It is very broad, and covers the Hyde Scholl fence, using metal projections, completely. We have, therefore, made arrangements to pay Mr. Crane royalty for all fences made. We have adopted the name Hyde-Scholl, because such construction of fence was known better to our trade than the Aspinwall; but in reality the separator is more an Aspinwall than a Hyde-Scholl; in fact, it might very properly be called after Mr. Aspinwall.

Regarding the name "fence" and "separator," there are trade reasons why all the division appliances between plain sections should be called fences, and those between beeway sections should be called separators. In our opinion, the Hyde-Scholl fence is just as much a fence, if not more a fence, than a separator. It is made up of a series of slats, and resembles very much fences that are used to inclose lots and farm lands. It would be very confusing to the trade to speak of this appliance as a separator, as the bee-keeping world has come to associate a separator with something that is used between the old-style sections; and we could not consent in our catalog matter to change the name, as it would lead to no end of confusion among our dealers and customers.

The question of priority in inventions is a pretty complicated one, and it very often happens that the real inventor of an idea, or the one who contributes the most to a perfected appliance, does not have his name attached to it, simply because trade reasons require the use of the old name to avoid confusion. If we give full credit on this new separator we should attach also the names of Mr. J. E. Crane and Mr. L. A. Aspinwall; thus, Aspinwall-Crane-Hyde-Scholl fence. Such a name would be a long-tailed abomination, to say nothing about the trouble in referring to it and billing it on invoices. But you and Mr. Scholl deserve credit for hanging to this idea and continuing to use it, thus bringing it before the bee-keeping world when it might otherwise have been dropped and forgotten. Your persistent advocacy of the principles entitles you properly to the use of the name Hyde-Scholl, as applied to this particular form of separator, for you were the *introducers*, if not the original inventors, of the main principles of it.—ED.]

STAYING UP FOUNDATION WITH WOOD SPLINTS.

Dr. Miller:—1. Excuse me if I ask you a few questions. Would you please explain to me how you use your splints in fastening foundation? Perhaps you might tell me to get your Forty Years Among the Bees. Well, I surely will later on.

2. I also have some shallow frames with a saw-kerf, but I really don't know how to fasten the foundation in them.

3. Where did you purchase your splints?

Metz. Wis. FRED STROHSCHEIN.

[Dr. Miller replies:]

1. I quote from Forty Years Among the Bees, page 87: The foundation is cut so as to make a close fit in length, and the width is about half an inch more than the inside depth of the frame. The frame is all complete except that one of the two pieces of the bottom-bar is not yet nailed on. The frame is laid on a board of the usual kind, which fits inside the frame, and has stops on the edges so that, when foundation is laid on the board, it will lie centrally in the frame. The half of the bottom-board that is nailed on lies on the under side. The foundation is put in place, and one edge is crowded into the saw kerf in the top-bar. Then the lacking half of the bottom-bar is put in place, and a light nail at the middle is driven down through both parts. Then the frame is raised, and the ends of the two halves of the bottom-bar are squeezed together so as to pinch the foundation, and nailed there. Then the usual wedge is wedged into the fine saw-kerf in the top-bar.

Now we are ready for the important part. Little sticks or splints, about $\frac{1}{16}$ inch square, and about ¼ inch shorter than the inside depth of the frame, are thrown into a square shallow tin pan that contains hot beeswax. They will froth up because of the moisture frying out of them. When the frothing ceases, and the splints are saturated with wax, then they are ready for use. The frame of foundation is laid on the board as before. With a pair of pliers a splint is lifted out of the wax (kept just hot enough over a gasoline-stove), and placed upon the foundation so that the splint shall be perpendicular when the frame is hung in the hive. As fast as a splint is laid in place, an assistant immediately presses it down into the foundation with the wetted edge of a board. About 1½ inches from each end-bar is placed a splint, and between these two splints three others at equal distances . . . A little experience will enable one to judge, when putting in the splints, how hot to keep the wax. If too hot there will be too light a coating of wax.

2. If there are two saw-kerfs side by side, crowd the foundation into the larger kerf, and then crowd the wedge (that came with the frame-stuff, into the narrower kerf. If there is only one kerf, crowd in the foundation, and then drop a few drops of melted wax along the foundation and top-bar, so as to hold it there till the bees fasten it securely. Instead of dropping the melted wax, you can crowd a waxed string into the kerf beside the foundation.

3. From the A. I. Root Co.

WINTERING WELL IN DANZENBAKER HIVES; SHUTTING BEES UP AT SPRAYING TIME.

My bees went through the winter well; that is, those in the ten-frame hives. I lost a few hives of eight-frames, but did not lose a single ten-frame colony. This has converted me to the ten-frame Danzenbaker hive.

What shall I do when it is time to spray apple-trees? Would it be advisable to close the entrance of the hives for a day or so until the white arsenic has dried on the blossoms? This is the center of the Wellhouse apple district, and everybody sprays his trees. ARTHUR E. MOORHEAD.

Leavenworth, Kan., April 23.

[We have had uniformly favorable reports of good wintering in Danzenbaker hives outdoors. We attribute this to the closed-end frames, which are warmer.

If you have no law in your vicinity against spraying trees while in bloom, it may be advisable, possibly, to close up the entrances while the trees are being sprayed; but it will not be advisable to keep them closed more than two days, probably. Possibly you can make arrangements with your neighbors to spray all at one time, on one or two days, if you can not induce them to spray before and after blooming. I send you literature which will give you some solid facts against spraying while in bloom; and if your neighbors, the fruit-growers, are reasonable and fair men they would be willing to give these statements proper consideration. We shall be glad to furnish any of our readers facts about spraying.—ED.]

VIRGINS HATCHING IN WIRE CAGES; HOW TO KEEP THEM FROM STARVING.

Will you please tell me how you manage to have your virgins hatch in the wire cages used by you, and have the bees feed them until you use them, and not kill them? I have tried several lots this year, and invariably the bees have let the virgins die after they hatched. I have tried both queenless colonies and upper stories above the excluder. Please advise me. H. H. HYDE.

Floresville, Tex.

[This was referred to our apiarist, who is at present attending college. He replies:]

Perhaps if I thoroughly understood the conditions under which Mr. Hyde is working, I should be sooner able to ascertain the cause of his failure along the line he indicates. The statement of a few fundamental details, however, may reveal the cause of his trouble, and be helpful to others as well.

Whether the colonies used for incubating the cells are queen-right or queenless, they must be strong, and the cells should be placed in a populous part of these. As explained in "Modern Queen-rearing," where virgins are to be held over for a longer period, queenless colonies give better results. However, I have been completely successful by leaving them in the middle of any normal colony.

On page 27 of "Modern Queen-rearing" an important point is mentioned; viz., that of keeping the cages supplied with *fresh* candy. There are times when, for some reason or other, even queenless bees do not feed the caged virgins sufficiently. Well, in these circumstances a large percentage die. Now, when ripe cells are to be caged, the bee keeper should overhaul the nursery-cages and see that they are supplied with good *soft* candy. (The peculiar construction of the Titoff cage renders this very easy.) Old hard candy is little better than none at all. I should not be surprised if Mr. Hyde's trouble is in this direction.

Again, queen-cells should be removed soon after the virgins hatch. They have an unpleasant habit of crawling again into them and endeavoring to eat their way out at the base of the cell—a rather difficult job, by the way, when the cell is formed in a hard wood block. Often I have examined cells which I thought were defective, only to find the wrong end of a virgin queen turned in the direction of the open apex, and the top end nearly tunneled out. Let me say here that this is a comparatively rare occurrence in the Titoff cage. Still it may happen even in this, and the best way is to remove the cells.

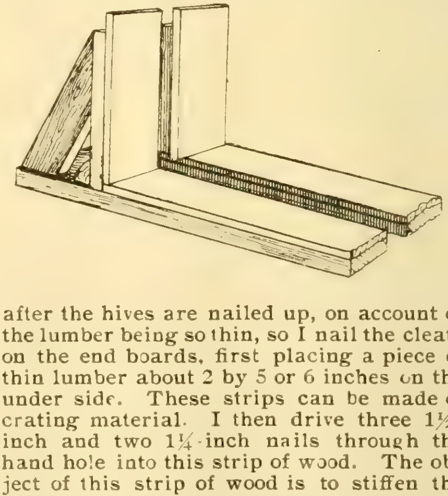
Another point that might be mentioned, though indeed one that ought to be so obvious as hardly to need mentioning, is that the tin slide must cover the candy-hole when the cages are used as nurseries. Neglect this and is it not plain that the bees will soon eat away the candy, and be in possession of them? And then the virgins or cells—where will they be?

GEO. W. PHILLIPS.

Denison University, O.

A HANDY DEVICE FOR NAILING UP HIVES, SUPERS, ETC.

Having some 70 chaff hives and as many single wall hive-bodies, as well as 75 comb-honey supers to nail up this winter, and as they must all be square, I did not like the idea of using a common square to gauge all this work. I made a combined square and work-table (see cut) which I believe has saved me several days' time this winter already. I find it almost impossible to nail the hand-holds firmly on to the chaff hives after the hives are nailed up, on account of the lumber being so thin, so I nail the cleats on the end boards, first placing a piece of thin lumber about 2 by 5 or 6 inches on the under side. These strips can be made of crating material. I then drive three 1½-inch and two 1¼-inch nails through the hand hole into this strip of wood. The object of this strip of wood is to stiffen the hold. The square referred to above is made of a two-inch plank with an inch



board nailed on each side, leaving a crack two or three inches wide in the middle to accommodate these hand-holes. If you have no section-press you will find it convenient to use something of this kind in folding them. F. J. STRITTMATTER.

Bradley Junction, Pa.

SHALL HOUSE-APIARIES BE REGARDED AS OBSOLETE?

I notice with much interest what Mr. Fred H. Loucks says of the house-apiary, in last GLEANINGS, April 15. Recent experiences with me have been such as to place the house-apiary in much favor. I think it would be a misfortune if any thing that favors a modern house-apiary should be dropped from a revised edition of the A B C. I believe that the day of the more general use of house-apiaries is fast approaching, especially in cold climates. I shall be glad if Mr. Loucks' advice is heeded. L. C. ROOT.

Stamford, Conn., April 28.

[I possibly gave a wrong impression regarding matter that appears or does not appear in our new A B C of Bee Culture on the general subject of house-apiaries. At Mr. Salisbury's request we omitted all reference to his particular house, but left in the other matter, all of which might be considered quite favorable to the house-apiary. We have since received reports from others who have been using the Salisbury building, and who are much pleased with it. I am not sure but that a part of this matter relating to the Salisbury house apiary will have to be reinstated in some future edition of the A B C. In the meantime I should be glad to hear from others of our readers. I should, perhaps, explain that Mr. Root is also the author of a bee-book, a very excellent one, and one of the veterans in our bee-ranks. His opinion on any question should have some weight.—ED.]

COPULATION OR FERTILIZATION MORE THAN ONCE—WHICH?

The article from the pen of Prof. Frank Benton on page 385, on the mating of a queen more than once, is certainly very interesting; but in the cases mentioned it seems hardly to answer the question, "Does a queen mate more than once?" What is usually understood by this question is, does a queen that has mated and been laying until the eggs become unfertile, mate again?

The cases cited rather go to show copulation without fertilization till the last act is performed; so, also, in the case noted by Mr. Baier, on the following page. There seems to have been serious interruption of the natural functions, so that it can scarcely be said that there was more than one mating. Is it not possible that a queen might meet a drone incapable of producing fertilization? Shall the male bee be made an exception to the rule as we find it among others of the animal kingdom? This is certainly an interesting subject for thought, and will be likely to attract the attention of those who are making a careful study of the occupants of the hive.

W. M. WHITNEY.

Lake Geneva, Wis., April 19.

[The point you raise is one worthy of consideration. Perhaps Prof. Benton can enlighten us further.—ED.]

A NORMAL QUEEN THAT LAID EGGS ON THE SIDE OF THE CELL.

On page 377, in regard to queens not being able to lay eggs in the bottom of the cell, I had a very large queen that laid eggs on the side of the cells, and I sliced off a part of the cells so that they were only one-third the original depth, and the queen laid the eggs in the bottom of the cells, and the eggs were matured and capped over all right. I think there are many of the most valuable queens that are discarded on account of the cells being too small for the nicest and largest queens to use on account of the very small cells.

As long as the queen-breeders aim to get the largest queens possible, there has not been any desire or much thought given to making the cells larger to accommodate their size. If you ever have a queen that lays eggs on the side of the cells, give her some larger comb and she will lay them in the bottom of the cells all right.

Eagle Grove, Ia. C. K. CARTER.

[The case described is not common. The great majority of queens that lay eggs on the sides of the cells are not good for any thing. If their eggs hatch at all they will develop into drones. Our large experience in queen-rearing has shown this to be the rule.—ED.]

FOUNDATION SMELLING OF KEROSENE; CAN IT BE USED?

Having had the misfortune to have some kerosene get on some of my foundation, and not knowing what to do with it, I thought I would write you about it. It seems to evaporate, but the foundation has a flowery appearance. Do you think it can be used, or must it first be purified with acid?

Bees are in good condition; temperature rather low, ranging from 45 below to 20 above since Oct. 15; no flight since.

Dorchester, Wis., Feb. 19. WM. UECK.

[I do not think the kerosene will hurt your foundation. Give it to the bees, any way, this summer. If they refuse to touch this, and take other foundation, let us hear from you further.—ED.]

DO QUEEN-EXCLUDING HONEY-BOARDS RETARD WORK IN COMB-HONEY SUPERS?

I have been a reader of GLEANINGS for 18 years, off and on, and I should like to ask one question through it; and that is this: Does it retard the bees from working in the sections by using the queen-excluding honey-board between the sections and the brood-nest when working for comb honey? Last year I had some trouble by the queen getting into the sections. In other words, can you get more honey without using one?

W. H. DICKINSON.

Middleton, Conn., Jan. 28.

[There is a difference of opinion on this question. The great majority do not consider that excluders are necessary when running for comb honey if full brood-nest be allowed. If contracted they are almost a necessity. I should like to hear from our subscribers on the point raised by our correspondent. I may, say however, that, in the production of extracted honey, excluders are generally considered quite essential since brood or extracting combs are more tempting to the queen than section boxes with foundation.—ED.]

A PECULIAR CASE OF SOURED HONEY.

Quite a lot of bee-keepers have sold some honey to Pomona merchants which either was not ripe (something very unusual in California) or else there is some strange atmospheric condition prevalent which tends to start fermentation in honey. Last season's honey, as well as honey kept over from 1902 crop, was already granulated solid, but became liquid again, and then started fermentation (according to the statement of parties interested). I suggested that perhaps there was some soldering-acid left in the tins used, which started the mischief. Well, the trouble is that quite a number of merchants complain that honey on their hands does not keep in good condition this year (extracted only, as comb honey has given no trouble). Now, we want to know what can be done to this honey to make it salable. Will cooking take out the sourness? Can it be fed to bees without bad results? What do you do in such a case?

M. R. KUEHNE.

Pomona, Cal., Mar. 14.

[Heating soured honey helps it somewhat. After it has been cooked, if the bees will take it in warm weather I do not think it would do any harm. If they will not do any thing with it, the only thing to be done is to convert it into honey vinegar. As to the cause of this sourness, whether the honey was taken off green, whether soldering-acid got into it, or whether the source from which it was gathered had some effect on it, I leave our California friends, who may be in possession of information, to answer. —ED.]

BRASS TAGS FOR HIVE-NUMBERING.

I notice that there is a demand for a better system of keeping a record of hives in the bee yard. When I kept my bees in Ohio I used a system which I believe will interest you. I secured 100 brass tags about the size of a half-dollar, numbered from one to a hundred. A fourth-inch hole was punched in each tag near the edge, and they were then hung on a brad on the sides of the hives, while a corresponding number in my book showed the record of each queen. They are not expensive, and the man who makes your stencils can furnish them. I like the system better than any that I have ever seen; for instance, if hive number eight should cast a swarm, I hive the swarm in a new hive, lift off the check and hang it on the new hive, and my book-record still holds good. I simply place a new check on old number eight, and make another record in my book.

WALTER S. POUDER.

Indianapolis, Ind., Mar. 7.

[The only objection to these brass tags is that the numbers would be inconspicuous. They ought to be plain enough to be seen quite a distance away.—ED.]

INSTINCT; COOKED NUTS VS. MEATS.

Friend Root:—In regard to instinct or prudence impelling bees to remain in their hives, page 1010, my opinion is that the field bees were practically all destroyed; and by the time the younger generation were of suitable age to go to the field the hawks were gone.

Page 1012, Dec. 1, in regard to a circle of bees around a queen preventing her from laying, it occurs to me that these bees were nothing more nor less than her retinue or nurse-bees, with the most friendly intent.

Page 1019, same issue, Mr. Lathrop's article on uncooked foods as compared with meats, I should like to ask if the oil contained in the English walnut, and freshly roasted peanuts, would not represent in a certain degree the oil contained in meat, especially if the meat contains any fat. This would certainly be true of the roasted peanuts, as the roasting changes them *materially* from nature. I know people (of the same denomination referred to in A. I. R.'s article, page 1015) who substitute peanuts for both meat and butter; in other words, they make a sort of butter out of them. I am not setting myself up over older or wiser heads; but these thoughts just occurred to me while reading the last issue.

Hillsboro, Wis. ELIAS FOX.

[Peanut butter has come to be quite an article of commerce. At our house we use quite a little of it as a relish to spread on bread and butter. Just how far nuts can take the place of meat in a diet I am not prepared to say; but I have learned from experience that, when I am all "run down," there is nothing that does the work of building up like clear lean beef. It is the natural food of man, and, when properly cooked and *properly proportioned* with other foods, there is no article of diet that quite takes its place. I believe I have a right to speak from experience, as I have "been there"—not once but several times, and I have seen its effects on others.—ED.]

DO CALIFORNIA LIZARDS KILL BEES?

Have you any knowledge of lizards being destructive to the strength of colonies? In my apiary, which is situated in the foothills of the San Fernando Valley, there are large numbers of the small variety, about six inches in length. In fact, I do not think I exaggerate when I say that at least one could be found about any of the hives. I have been told by several bee-men that they do not eat the bees — at any rate the live ones — and so accepted this as a fact until the other day. While eating my luncheon in the shack at the apiary I noticed, when I commenced, that there were several bees buzzing on the window; also that a lizard was scurrying about inside the shade. In the course of a short time I observed that there was but one bee left, and came to the conclusion that the various scurries I had heard had meant that each denoted the end of a bee, so I determined to pay particular attention to what became of this last one. After a short wait I heard another scramble, and the buzz of the last bee had ceased. Gently raising and looking under the shade I saw the lizard with the bee in its mouth. It was holding the head and body, up to the thorax, in its mouth, with the abdomen out, under side up, the bee vainly thrusting its sting in the air. While watching, it began a series of quick side rubs on the curtain until it eventually severed the abdomen, which fell to the floor, while it swallowed the portion held in its mouth. I am convinced that there were at least five bees on the window when I sat down, so there was ocular proof that, within a quarter of an hour, this lizard had made away with that number. I do not believe they will attack a bee at the entrance to the hive, having often noticed that they cross the alighting-board at a rapid rate; but I do believe that they make away with many that may crawl on the sides or top of a hive.

Some time ago I found one dead inside the hive on the bottom-board, with a number of stings in its body, which would show that, although of the cold-blooded order of reptiles, they are susceptible to the sting of the bee. I would add that this particular lizard had apparently no relish for the dead bees, as there were many on the ledge of the window, but evidently preferred, at the expense of the labor and hazard of the sting, to have his meat fresh. E. W. MOORE.

Soldiers' Home, Los Angeles Co., Cal.

[I have seen the lizards in California; but those that I saw seemed to be perfectly harmless, and my bee-keeping friends so regarded them. Some of them grew to be quite tame and would almost let one pet them on the head, for I thought them quite pretty. But it is possible these same creatures were not so innocent as they looked, and on the sly would gobble up bee after bee. I should like to hear from some of our California friends who may have any thing to offer on this subject.—ED.]

PHACELIA TANACETIFOLIA FOR HONEY AND FODDER.

Some questions have been asked about *Phacelia tanacetifolia*, whether this plant would be good for fodder. This plant is very good for fodder and honey in the Northern States where alfalfa can not be grown to advantage. Alfalfa has many advantages over phacelia. Alfalfa is perennial; can be cut from three to six times a year, and brings each time from one to one and one half tons of hay per acre. Alfalfa, even if cut late, will still make fine hay.

Phacelia is an annual, and it can be cut only once or twice in the same year. The first time it should be cut for hay, just when commencing to bloom fully, giving the bees about one week's time to work for honey. If the season brings moisture in sufficient quantities, as is general in the Northern States, I believe it will bring a second cut, which may be used for honey and seed. I have not tried it here, especially for such a second crop, as we we have not sufficient moisture in this country, but I have seen it produce new growth near ditches where I had cut off some for experiment, and this new growth produced again flowers and seed. Phacelia will make fine hay for all kinds of stock, if cut not too late, say when blooming about from one to two weeks.

If a country is suitable for alfalfa, this fodder will bring much larger returns than phacelia. OTTO LUHDORFF.

Visalia, Cal., April 9.

A SUCCESSFUL USE OF FORMALIN.

Having read about formalin for disinfecting foul-broody combs, last January I fumigated about ten hive-bodies and combs, some containing honey, and to-day there are no signs of disease among the bees in the fumigated hives. I am fumigating all supers this season; but I find if the combs are not well aired the bees leave them and their brood to take care of themselves.

Ohau, New Zealand. E. J. PINK.

DIVIDING AT THE TIME OF TRANSFERRING.

I should like to ask a question or two. I have several swarms in box hives to transfer. Some of them are very strong. Can I, or would it be advisable when I transfer them, to divide them and make two swarms out of one? I should like to have a few more swarms. S. W. GRAY.

[If increase is desired, this can be done to advantage.—ED.]

A KINK IN WIRING.

I have followed using full sheets of light brood foundation in wired brood-frames for several years. I have tried different ways of wiring; but my best results have been obtained by using four horizontal wires drawn moderately tight (the top ones being drawn most), and putting the lower wire not less than 1½ inches above the bottom-bar, with the others spaced to suit. Buckling is usually between the two lower wires; and raising the lower wire will obviate its buckling there by giving a weight of bees below the lower wire while drawing out the foundation. NEWTON DOTSON.

Summersville, W. Va., Jan. 14.

[All things considered, we prefer ourselves this plan.—ED.]

CYPRESS AS A HIVE MATERIAL.

I want to tell you that you are much mistaken when you think white pine the most suitable lumber for hives, page 436. We have cypress here in plenty, and I think it is pretty generally distributed everywhere, or at least as much so as white pine. Cypress is superior to pine, at least in our Southern States. I have some hives in use made 18 years ago, and which have been in use ever since, and are in good condition, and have never been painted except once. They have only a square or box joint. You can buy cypress, clear boards, here at the mill for $20 to $25 per 1000, rough. I make my hives and frames from it. It is soft, and doesn't split if the right size of nails is used, or no more than white pine.

Here is what the Kretchmer Mfg. Co., of Red Oak, Iowa, says: "A few facts why cypress is the best lumber. It will last longer than any other. It is the only wood impervious to acid. It does not shrink nor swell like other wood. It does not warp nor twist when exposed. It has not the knots and defects found in other lumber. It is lighter; hence less freight."

I can indorse the above, and hope you will give this excellent hive material a fair showing. I haven't any cypress to sell, but can send you a sample of our southern cypress. It may be different from what you used to make sash-frames of.

Pearson, Ga. G. B. CRUM.

[Cypress as a hive material is all right, and under many conditions may be better than white pine, but under others is not as good. When I spoke of pine as being the better of the two, I meant *at the price*. Cypress in the region of most of the bee-hive factories would cost considerably more than white pine. The freight on it from the South to the North would make it quite prohibitive for bee-hive work; and even in your locality, while it seems plentiful, the aggregate supply would be very limited for general purposes.—ED.]

FRESH PAINT TO STOP ROBBING; RUBEROID FOR HIVE-COVERS.

I have a remedy that never fails me for robbing. I take a paint-brush and dip it in a bucket of paint, and draw it across the alighting-board, and sometimes paint the front end of the hive. This may be an old remedy with some, but I don't remember seeing it in print.

I was interested in what Dr. Miller had to say in regard to ruberoid for hive covers. I have had three years' experience with it, not for covers, but for the deck on top of my house, and three porches, which are covered with it. It makes a perfect roof — no odor after the first season. It must be put on a solid smooth surface, as any vibration will cut it out. The weight is about the same as building paper of the same thickness.

Whiteside, Mo. S. W. SMILEY.

[Fresh paint to stop robbing would probably do very well if the robbing had not progressed too far. Bees dislike carbolic acid about as much as any thing; and I have noticed that mild cases of robbing can be stopped by smearing the entrances with such solution; but nothing, apparently, will stop it when the bees get to going to such an extent that those in the rear crowd those in front on to an offensive substance like paint or carbolic acid. After all, the best cure by all odds is the old-fashioned one of prevention — keeping the entrances of the right size, so that the inmates of the hive can make a proper defense in the first place.—ED.]

SAPOLIO FOR REMOVING PROPOLIS.

Did you ever try sapolio for removing propolis from the hands? Just rub a cake over your hands, and the propolis will disappear as by magic. It has just enough grit in it to remove the dirt, and it will make a lather too. It is better than lava soap for the purpose. S. G. KILGORE.

London, Ohio.

[I never tried it, but I am sure it would work. I do know that lava soap is excellent for taking off propolis.—ED.]

TWO QUEENS IN ONE CELL.

As I was cutting out queen-cells from a hive last summer I found one cell that had two queens in it. They were white in color, and I judged they would hatch in two or three days. Both were perfectly developed queens in a cell capped over. Did you ever hear of a case like it before?

Knoxville, Iowa. JOHN R. MILLARD.

[Has any one of our readers seen any thing like this before?—ED.]

HONEY NOT GRANULATING IN SEVERE COLD.

On page 181 Mr. J. F. Orishaw speaks of honey not granulating in severe cold. I had the same experience this winter for about two months, but in the last two weeks we have had mild weather, and the honey is granulating now.

M. W. HARRINGTON.

Williamsburg, Ia., March 7.

[Your experience is quite in line with our own and that of a number of others who have reported on this question during the last three or four months.—ED.]

OUR HOMES,

BY A. I. ROOT.

Consider the lilies of the field, how they grow; they toil not, neither do they spin; and yet I say unto you that even Solomon in all his glory was not arrayed like one of these.—MATT. 6:28, 29.

How amiable are thy tabernacles, O Lord of hosts!—PSALM 84:1.

It has often been remarked that we have no record that the Savior when here on earth ever smiled. I feel sure, however, that he did, and that they must have been *winning* smiles; and it has occurred to me that perhaps one reason why so many were willing to "leave all and follow" him was because of that wondrous divine and winning smile, or perhaps a pleasant kindly light from his eyes. It is probably true, however, that he did not give much attention to many things that greatly interest us at the present day. One of the infidel writers says Jesus was a sad-faced, disappointed man. This writer apparently never dreamed that the holy scriptures tell us he was a "man of sorrows, and acquainted with grief." And is it to be wondered at, dear friends, that his life was sad and sorrowful when he realized that the sins of the world rested for the time on his feeble human shoulders? Is it at all strange that he had but little sympathy with the frivolities, to say nothing of the sins, of humanity?

Before I leave this matter I wish to say that, in my opinion, notwithstanding his sadness and sorrow, there was what might almost be called a vein of pleasantry running through his whole life. Early in his work he attended a wedding. He believed in weddings, and liked to see people get married. I do not know but this is one reason why I feel glad whenever I hear of two young people of the proper age uniting their fortunes. At this wedding, you may remember, his mother came to him mentioning the predicament they were in, in the way of refreshments. His reply would almost seem rude — "Woman, what have I to do with thee? Mine hour is not yet come"— were it not for the fact that he immediately performed that wonderful miracle. She did not take the remark as unkind, because she turned to the servants right after, saying, "Whatsoever he saith unto you, do it."

Now, I think this rough speech of his was more playfulness and pleasantry than disrespect. I should not be surprised if he gave his mother one of those wondrous smiles when he said it, so that, instead of feeling hurt, it may have made her motherly heart bound with joy, for *she*, at least, *knew* of his divine mission. Once more, when the Syro-Phenician woman came to him, beseeching him to heal her daughter, the disciples urged him to send her away; and he himself finally replied to her importunities that he was "not sent but unto the lost sheep of the house of Israel;" and perhaps he turned away from her; but no one can for a moment suppose he intended to rebuke her and hurt her feelings in that way. My opinion is that this woman, by her womanly intuition, and prompted by the love for her child, saw through this *assumed* unfriendliness, and read the kindly thoughts and feelings that were beneath the surface. Is it not possible the dear Savior, amid all his cares and burdens, sometimes dropped back into what we might almost call boyish playfulness? It seems to me this woman, with a mother's love, guessed at something of the kind; and I can imagine the eager smile of hope on her face as she for the time falls in with this vein of pleasantry. He takes up the same *role* once more, and tells her "it is not meet to take the children's bread and cast it to the dogs." The Jews had been in the habit of calling the people of her nation "dogs," and therefore Jesus used the term; but she was equal to the occasion. Notwithstanding the second rebuff, she gained in hope and faith. She falls in with his pleasantry, and replies, "True, Lord; yet the dogs eat of the crumbs which fall from the master's table."

Then came her reward. Then did he throw off the veil, and come out with his great love for sinful humanity, no matter what nationality. I wonder what his disciples, who urged him to send the woman away, thought as he uttered those wonderful and gracious words, "O woman! great is thy faith; be it unto thee even as thou wilt."

On a third occasion (which I will just notice), on the way to Emmaus, after his crucifixion, he made believe he was going on in order that his comrades might invite him to stop with them. These glimpses of this trait in the Master, of what I have taken the liberty to call boyish playfulness and pleasantry, are endearing glimpses, to me, of the wonderful being who lived a human life here on earth, and "spake as never man spake" before or since.

We can read his words and works again and again, and continually get new and precious glimpses of him who was both divine and human; and I have been wondering lately whether, like the rest of us, he had peculiar likes, or, if I may so express it, a fondness for or interest in any special lines of the work of humanity. He did not care much for great buildings; because when the disciples pointed with Jewish pride to the temple he scarcely noticed it; and the only answer he gave was that there should not be left one stone upon another that should not be thrown down.

Now, after this long preface I wish to suggest that Jesus loved the country, the fields of grain, and last but not least, he loved *flowers*. We know he appreciated them and admired them, from the words of our text. We might gather, possibly, also that he had not much more respect and admiration for soft and expensive clothing than he had for costly buildings. And then he calls our attention to the lilies of the field, and he suggests that no money nor skill of man can deck out a king so as to have him rival or even equal one of these humble flowers. I am greatly interested once more in my life in studying flowers, and seeing them grow; but I do not grow flowers for sale. In fact, I am not growing any thing for sale now worth mentioning. Then the question has come up, "What shall I do with all these flowers that are budding, blooming, and unfolding?" Well, I could give away quite a good many; and this spring, as the "flower committee" belonging to the Endeavor Society has been a little behind in furnishing a display of flowers for the table in front of the pulpit at our church, I have greatly enjoyed doing this myself. When the roads are good, with the help of the automobile I can carry quite a display of plants up to the church early Sunday morning. In this work I have the hearty sympathy and concurrence of our pastor. When building that little greenhouse, and brightening it up with my floral treasures, a good many times I have been disappointed because people generally did not seem to appreciate it. I was never disappointed, however, when Bro. Hill came around. His enthusiasm is fully equal to mine. He takes in even the humblest little plant, and, like myself, loves to pet and care for it. In fact, he has quite a collection of his own—about as many as a minister and his busy wife have time to care for; and when I have duplicates it is a great pleasure to divide with him.

Well, for several years past there have been some very pretty beds of geraniums and other flowering plants on the lawn in front of the church. It just occurred to me a few days ago that I might (or, rather, ought to) help in making the church look beautiful and inviting outside. I made some inquiry as to who attended to the "landscape gardening" around the church. Nobody seemed to know much about it, and I finally asked Bro. Hill who were the members of the committee on that work. With one of his peculiar smiles he simply pointed his thumb toward his vest buttons, giving me no other answer. I replied, "Why, Bro. Hill, you don't mean that *you* have been doing all this work yourself?" but he made no reply except to point his thumb in the same direction, and nod his head.

"But, my dear friend, somebody has furnished money for the bulbs and plants. Who paid for all these things?"

For the third time he answered in the same way, without speaking a word.

"And is there really no committee? Are you in real truth 'it'?"

Then he answered verbally, "I suppose, Bro. Root, I am really '*it*'—at least so far. I presented the matter to the church committee and they thought there had been so many criticisms in regard to the amount of money spent on repairs inside, enlarging the church, etc., that they really had not any authority, or could not see their way clear, to allow any thing at all for outside decoration in the way of 'posies,' and so I have been doing it all myself. I have nothing to complain of. It has been no great task, and you know I must have some outdoor employment or recreation. This comes in nicely, for, while it improves the looks of things, it is my hobby, and I really enjoy it."

I think I shall have to confess he did not say *all* the above; but as nearly as I can find out the matter is about as I have expressed it. Now, right here is the great point of this Home paper—the kernel or meat of it. Are there any plants or flowers around *your* church? Is there a lawn? Are there nice walks, stone or gravel, when it is muddy? Does your pastor love flowers? Would it gladden his heart or the heart of his good wife if you went to work and had a "surprise party" out in the open air by fixing up the premises, and bringing flowers, not only for decoration day, but something that will last all summer long, and be ready to stock with flowering plants again the following summer, and so on? I need not give you instructions. Your wives and daughters (and sweethearts) will tell you just what to do, and they will hunt up beautiful plants. May be somebody in your community will go to the nearest greenhouse and get not only advice and instruction, but a few plants that will not cost very much. Fix up the house of God, the temple of the Holy Ghost. Teach your children to love, reverence, and respect it. If there are some wayward boys in the Sunday-school who are suffering for want of something to do outdoors, get them to dig up the ground for the mounds and flower-beds. Then somewhere in your community you want to hunt up an old barn where manure has been accumulating for years, and growing weeds. Get a good load of this compost, or two or three loads if you can afford it. Get the Sunday-school interested. The young men and women will work like beavers when you get them agoing. When this Home paper reaches you it will be just the right time of year to get at it. Don't say you have no time for such things. A man once urged as a reason for not doing any thing for the church, that he was in debt. The pastor replied, "My friend, do you not owe at least a little something to God and humanity?" I think this man was a church-member, so he owned up at once that he was in debt to God for his abundant mercies.

"Well, then, dear brother, how happens it that you pay all your others debts first, and leave the debt you owe to God the last of all?"

The reply was, as nearly as I can remember, "Why, to tell the truth I do not know that there is any particular reason why the debt I owe to God is left to be last of all, unless it is that he does not *crowd* me as much or in just exactly the way other people do."

Now, dear friends, do *you* do every thing else first, and leave God's debt till the last, even though it be true that he is not crowding you? You have children who are growing up around you. A love of flowers may keep them away from saloons and gambling-dens; and because of the flowers they helped to start, may be induced to attend Sunday-school and the preaching services. Suppose you by staying at home and neglecting the house of God and all these things should lay up a "lot of money," and die "well off." What would all this amount to when death comes before you face to face, if with it must be the reflection that your children have, one or more of them, gone astray. "What shall it profit a man if he gain the whole world and lose his own soul?"

While I write, a vivid picture comes into my mind of the little church in Northern Michigan. The young people of the Sunday-school drew on some gravel, and fixed some nice walks around the church, also looked after repairing the roof and steps; and they often bring flowers; but I do not suppose any one of the dear friends has ever thought of a flower-bed in front of the church; and this is to remind them when their old friend gets back once more to the little church among the hills, there is going to be a flower-bed in front of the church, with some choice plants in it. As there is a fine watering-trough, and a never-failing spring just across the road, somebody will see to watering the plants, I am sure, when we have a dry time. Dear reader, can *you* think of any *similar place* that might be brightened by a bed of flowers? If so, may God give you zeal, courage, and enthusiasm to start the work.

THE RECENT ADVANCE IN BEE-SUPPLIES; ALSO SOMETHING ABOUT PUTTING CHRISTIANITY INTO BUSINESS.

A very well-gotten-up bee-journal, entitled the *Rural Bee-keeper*, has recently been started at River Falls, Wis. The issue for May (Vol. I. No. 2) contains the following:

> You and I can not agree on the raise in price of bee supplies. I think it is a one-sided game. They are just like the druggists. A few years ago quinine came up one dollar a pound. The druggists all over the country made a great ado and raised the price six dollars a pound. In my opinion that's just what retail lumber dealers and bee-hive manufacturers are doing now. If it is not so, why did the editor of Gleanings get off such a load in the last issue. He talks as if he paid fifty or sixty dollars for lumber by the carload. That is where he gives himself away. It beats all what a pious old man A. I. Root is. Can't even write a postal card on Sunday, but it doesn't hurt his conscience to charge fourteen dollars for a German wax-extractor. If it weren't for the patent, I could make one for three dollars, I think.
>
> C. G. ASCHA.

If we have anywhere in these columns or elsewhere "talked as if" we "paid $50 to $60 per 1000 feet for hive lumber," we were surely not aware of it. Perhaps our friend refers to page 1004, Dec. 1st, last year, when I said, "Good clear first-class lumber, such as manufacturers are now putting in hives, with few or no knots in, will cost at the planing-mill between $50 and $60 per 1000 feet." Cost whom? Does the language imply that the Root Co. was going to pay that figure by the *carload?* It would be the height of nonsense for us to attempt to convey the impression that we were paying from $50 to $60 per 1000 feet at the planing-mill, and then claim in the same article we were making hives out of it and giving them to bee-keepers a little above cost (to them) of the lumber. We do it, but *not with lumber for which we pay $60.00.* The fact is, we buy a special grade of shop stock at the lumber-camps, and "shorts" of large wholesale dealers, out of which, by cutting around the knots, we get a clear stock that would cost the bee keeper $50 or $60 at the planing-mill.* But perhaps our critic has in mind page 174 of this year. This refers to the first article, on page 1004, and *is to the same effect.* If he should possibly take one sentence apart from all others, he *might*, by a good stretch of the imagination, make such a construction as he has given above.

Regarding the wax-extractor which our friend says he can make for $3.00, our books show that, on the first season's output, we lost money on them, for we were not charging enough to pay expenses, notwithstanding we had just put in the latest machinery and skilled workmen. When our foreman showed us the figures we were compelled, as a matter of business, to advance the price in order to make a fair profit. If Mr. A. will make the same press *as good as the one we make*, at $3.00, we will give him a large contract for them. Or if he can make them at a cost of $3.00, why not go into the business of making them — charge a good round profit, and do a big business? There is no patent on them, so he can make and sell where he chooses. But he will find that, when he comes to make a machine to stand enormous strains, inexperienced and careless handling, he will have a job on his hands. It always costs enormously to introduce a new article; and if there is any change in patterns or dies, as there certainly was in the case of our wax press, to stand extra-heavy strains, that is another heavy expense.

As to the personal reference to A. I. Root, who has nothing to do with fixing extortionate (?) prices, he is quite able to answer for himself.—E. R. ROOT.

A. I. ROOT'S ANSWER.

The residence of Mr. Ascha is not given, and the editor makes no comment on the communication, either by footnote or otherwise. I am sorry to see this — not because it reflects on me particularly, but because it is a bad start for a new bee-journal.

My good friend, I thank you for the high compliment you are paying me in saying I can not even write a postal card on Sunday. I am afraid I do not deserve that; but it *is* true that I should very much dislike to write a postal card on Sunday on *business*. But you are mistaken in supposing our German wax-extractor is patented. There is no patent on it at all, and, in fact, it is mostly a copy of the one in general use in Germany, hence its name. If you can make them for $3.00, by all means do so, and we shall not feel hurt a bit, because it will be a great saving to bee-keepers throughout the land. And I firmly believe that those who know A. I. R. best are satisfied he is really working hard to help *bee-keepers* instead of to put dollars into his own pocket. Whenever any of you can make wax-extractors, hives, or any thing else, cheaper than we make them, by all means do so, and we will give you all the assistance we can. GLEANINGS has, from its very start, used its pages in telling people how to do things at home so as to save their money; and whenever you can make any thing we sell, cheaper than to buy it of us, go right ahead and do it, and we will help you.

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* We are just having delivered one invoice of 45 cars of hive lumber of this kind, and it didn't come from a planing-mill either.

Perhaps I had better add, for the benefit of friend Asche and others, that it is a good many years since I myself fixed prices on goods we make in our establishment; in fact, it would be out of the question for me at my age to figure up the cost on every thing, in order to see whether our people had the prices too high or too low. My department just now is basswood-trees and seeds of honey-plants; and whenever I find I am overcharging for any of these I should be glad to make it right. Of course, I am a responsible party in the firm; but it is hardly fair to reflect on my Christian character, even if such an establishment as ours *should* get the prices a little steep on some of the articles we manufacture.

It is a bad thing for bee-keepers to quarrel among themselves. God knows we have enemies enough — those who are adulterating honey, for instance — without any cross-firing in our own ranks; and it is bad for *bee-journals* to quarrel. Thank God for the kind and brotherly relations in which the old-established bee-journals are conducted to day; and there is not any "trust" about it either. I think friend Putnam has made a mistake, especially if he wishes to have the older journals extend to him a brotherly hand. We have always supposed him to be a friend of ours, and we can not but think he is that, even yet. I do not feel particularly hurt because my Christianity is challenged; in fact, I am rather glad to have it challenged; and if my life is not in keeping with what I profess, I am sure God will help me in my honest desire to make it so. A. I. R.

FROM CALIFORNIA TO NEVADA.

Here I am for the summer, seeking a livelihood among the alfalfa-fields of Nevada, with a carload of bees. Please send me GLEANINGS, and let my friends know my address. J. M. HAMBAUGH.

Leetville, Churchill Co., Nev.

HIGH PRESSURE GARDENING

BY A. I. ROOT.

Concluded from last issue.

Just before leaving I went into the spacious packing-room where a great crowd of men and boys were at work putting up plants for shipment. An experienced man takes the order, visits the several greenhouses with a suitable tray, and collects the plants needed. Let me explain here that the potting-soil in this establishment for almost every thing is largely clay—more clay than I have seen almost anywhere else. Now, this clayey potting-soil is all right for roses; but *they* seem to make it work finely for almost every thing. It has this advantage: When moistened just right the ball of soil from a two-inch pot can be squeezed up, three or more in a very compact form, the tops of the little plants being all in one direction. They are pressed together with the hand so they adhere and support each other pretty firmly; but when they reach their destination there is no trouble in separating them, so each plant gets the ball of soil that belongs to it. Well, after the three or more are squeezed together as I have described, some sphagnum moss, dampened just right, is put around them, then they are wrapped in clean soft paper. Many florists use old newspapers; but this firm has nothing but new paper made expressly for the purpose. Plants that must be kept quite moist are first wrapped in oiled paper, then in the soft wrapping-paper. These are carefully packed in boxes so arranged that the tops will not get crumpled up; and if the distance is not too great they will reach their customer full of life and vigor.

I believe I enjoyed the packing-room more than almost any other place. Men were constantly coming in with trays of plants of such variety of form and color that I really felt like raising my hands with an exclamation; but the man behind him had another lot just as handsome or more so. Then the expert packers picked them up; and, while they handled them with wonderful dexterity, nothing was injured in the least. Perhaps you have seen somebody with no experience undertake to handle delicate plants; and what bungling work he makes of it! These men seemed to have been trained from childhood up to do that one thing and to do it right. I do not know of any thing in the world I enjoy more than unpacking a lot of nice plants carefully put up; and, particularly so, in doing it in the night-time in that little greenhouse, with the electric light overhead. And then think of going out in the morning, and looking over your plants to see if they are all right! Why, it seems as if you could actually hear them rejoice as they spread out their leaves and begin to assume their normal shape after their close journey, packed up in a box.

Now in regard to the heading of this talk—managing plants so they will not die. I would recommend starting almost every thing with plants from these little pots. Get them to growing, either in the window, the conservatory, or the little greenhouse; transfer them to a larger pot when they need it, then move them outdoors, say along in May; and, if necessary, give them a little shade or protection until they get used to their surroundings. In this way, if you take pains, a failure is almost impossible. Your investment, instead of being a disappointment and a loss, will result in "a thing of beauty," and it ought to be "a joy" to you for many years if not "for ever."

HIGH-PRESSURE FARMING.

On page 308, March 15, I spoke of that wonderful farm of 15 acres, and said that so many articles and clippings had come in in regard to it we should not have room for them. I afterward learned that Mr. Detrich had been speaking at farmers' institutes, and wrote him, offering to pay for a report of the institute addresses. Up to the present time I have had no reply to that request, probably because he has been flooded with so many similar requests; therefore we present the following abbreviated selections from the amount of correspondence on the subject:

Friend Root:—On page 243 you have a clipping in regard to the fifteen-acre farm near Philadelphia. I have not visited that place myself, but I am personally acquainted with the proprietor, and have talked with quite a number of farmers who have visited the farm. He keeps the 29 head of thoroughbred Jersey cattle and two and three head of horses, and grows all the rough feed and straw that he needs for that stock on the 15 acres, besides what hay he has to sell. He buys his concentrated feed, such as bran, cottonseed meal, linseed meal, and gluten feed for his cows; has his stables cemented, and saves all the manure, both solid and liquid, and hauls it out every day in the year except Sunday. He uses no commercial fertilizers; but by saving all of the manure from these cattle and horses he has so improved his little farm that it yields enormous crops. You say it occurs to you he must have a large family of boys and girls to help, or employs a great deal of help. He has no family, his wife having died some years ago. He employs one man and one boy, who, with himself, do all the work except when filling the silos. Then he employs additional help. He sells his milk at some large institution in Philadelphia, delivering it every day. AARON I. WEIDNER.

Arendtsville, Pa., March 7.

Friend Root:—In a personal letter to me last November Mr. Detrich writes: "The scientific men have been very much interested in the soil. The chemists from agricultural colleges have been working on the soil, and have found that my soil has 20 millions of bacteria to the one-thirtieth of a cubic inch, four times more bacteria than in any soil previously examined."

The milk is sold to a sanitarium near by at 6½ cts. per quart, and tests 5.8 the year round. But two men are employed, except in rush season, and he attends to his pastoral work besides. As Prof. Bailey writes, he does some common things in an uncommon way.

Stone Ridge, N. Y. REV. CHAS. L. CLIST.

Friend Root:—The doctor is a widower, without a family. A tenent lives upon the farm, with whom he lives. Detrich is a German Reformed minister. He farms 13 acres of the 15; milks 17 cows, and has 27 head of live stock, horses, cows, and heifers; raises only fodders, grasses, etc. Grain is all purchased. Milk is sold in Philadelphia. The cattle are all fed in the barn. When a man goes to the field for clover, rye, or fodder, he takes a load of manure out. The manure makes the fertility. The chemist of Delaware Station (Prof. Chester) found more bacteria on this soil than any other he ever examined.

WM. H. MILLER.

Guy's Mills, Pa., Mar. 10.

In addition to the above I give place to the following, clipped by one of our subscribers from the Norristown, Pa., *Register:*

The Department of Agriculture at Washington has run against a practical farmer who, for the time being, seems to have called a halt on scientific agricultural exploitation. The farmer in question is Rev. J. D. Detrich, of Flourtown, this county.

Dr. Detrich, 21 years ago, came into possession of a worn out farm of 15 acres, which then had two cows and a horse on it for which hay had to be bought. Now Mr. Detrich keeps two horses and 30 to 35 head of cows and young cattle, and is making a large income from the place, feeding every thing from the produce of the 15 acres.

The Department of Agriculture learned last year of his success, and sent an expert to study into his methods. For a couple of days the expert, who was a splendid farmer in a practical as well as a scientific sense, followed Mr. Detrich over every inch of the 15 acres, asking every possible question as to the methods and results. A stenographer came along in the rear, taking down questions and answers.

It was found that Mr. Detrich had succeeded by introducing what is known among those who are "read up on farm matters" as "soiling." He had stumbled on an old book, little seen nowadays, by Josiah Quincy, on the practice of cutting green foliage and feeding it to cows kept in a cool, clean, fly-proof stable, where they would have nothing to do but chew the cud in contentment and profit, and make all the milk possible to be made from the tons of green stuff hauled to their mangers.

Mr. Detrich, with only a man and a boy, had found out how to plant and sow the succession of crops suitable for the process; and by hauling out the manure every day and spreading it on his few acres had made the soil extremely rich and productive. He had built large silos after the modern way of preserving forage in a succulent state for the winter, and he had cut off all the losses and made every thing count for profit.

The department at once recognized that a model farmer had been found, and proposed to issue a bulletin telling of his methods, and their success. It was estimated that Mr. Detrich's practical example would stimulate farmers all over the country to adopt better methods and improve their farms, and increase their crops, and thereby many millions would be added to the yearly output of crops and the total value of farms throughout the United States. Preparations were made to publish the bulletin in large editions, and the government would in a short time have made Mr. Detrich one of the most famous agriculturists of the age, and possibly a candidate for the position of Secretary of Agriculture in some future cabinet.

At this point, however, the plans of the department met with an unexpected obstacle. Mr. Detrich, hearing of the matter, objected to having his farm and home made the Mecca of inquiring brother-agriculturists with all their dreary hours of questions, and the consequent manifold interruptions and hindrances to his farmwork. He told Secretary Wilson that life would be a burden to him if the bulletin were printed, and said he should want to be paid $20,000 in a lump sum, or a salary of $2,000 a year for allowing the department to write up himself and his place and his way of farming, so that the thousands of farmers all over the country who were anxious to make money would be tumbling in on him from day to day the year round.

It was called to his attention that Luther Burbank, the celebrated hybridist who has called into being so many fine fruits, flowers, and vegetables, including the good old Burbank potato and Burbank plum, had posted a notice at his beautiful place at Santa Rosa, Cal., to say that visitors who wished to take his time to go over the place were to pay for it at the rate of $10 an hour; and it was suggested that he could adopt some similiar rule. This did not satisfy Mr. Detrich, and he continues to insist that he shall be paid the bonus or the salary, and shows no sign of abating his figures either.

Some of the department scientists have recommended that his terms be complied with, because the knowledge of what he is doing would be worth, as one expert has estimated it, $10,000,000 a year to the dairy interests of the country. The secretary has the matter under consideration. It is understood that Mr. Detrich would be expected to allow his farm to become a model farm, where other farmers could go and see how he does things, and he would be able to make just as much as he does now from his crops and his milk, and receive $2000 a year for having had the brains and the sense to work out a problem that millions of the best farmers of the country have at one time or another had in mind but have not overcome.

Since the above was received, friend Selser has sent us the following clipping:

REV. MR. DETRICH'S NEW FIELD.

Rev. J. D. Detrich, of Flourtown, for thirty years pastor of St. Luke's Reformed Church, North Wales, and widely known as a "model farmer," has decided to resign his charge and devote his energy to farming. Rev. Mr. Detrich has become widely known for his success on his fifteen-acre farm in Flourtown. This he recently sold for $75,000. He will superintend a 340-acre farm at Frazer, on the Pennsylvania Railroad, the farm to be conducted on the same lines as the Flourtown farm.

From this last item it would appear that this celebrated 15-acre farming is for the present ended so far as the skillful agricultural pastor is concerned. Two things now confront us. First, can the man who has purchased the 15 acres keep up the "high pressure"? My opinion is, he can not. Perhaps there is not another man living who can do it unless the former owner stays there (at least a spell) and superintends. He might, however, take a class of boys from an agricultural college, and I should think likely one or more of them might be taught the "trade" so as to manage almost or quite as well as the teacher.

The second one of the two things I had in mind is, "Can Bro. Detrich handle 340 acres in the same way, or any thing like it?" Candidly, I am very much afraid it will be a failure. If he had 40 acres, instead of 340, I should have more faith in the venture.

In closing I would say that the most complete report of this wonderful work is given in two numbers of the *American Agriculturist* for December 6 and 13, 1902. At one time I thought of getting permission to print the whole in pamphlet form; and if the government does not issue a bulletin to cover the ground, I may, perhaps, do so. The *Agriculturist* sent a reporter who asked no end of questions, and the answers were taken down in full. If the farmers of the world would profit by this wonderful object-lesson, I have not a doubt that it would be worth to them the *forty millions.* In fact, agriculture *ought to be* doing something while the scientific world is exploiting radium, wireless telegraphy, etc. We are just told in *Electricity* that Marconi has been offered $50 a day to print a daily newspaper on board the Cunard line of steamers, so that passengers, when they get up in the morning, can read of the happenings in both England and America (in an abbreviated form of course), instead of waiting for the news until they reach port.

Now, friends, is the agricultural, horticultural, and floricultural world, and market-gardening, going to keep pace with these other wonderful strides in the scientific world?

THE MICHIGAN SILK INDUSTRY.

Some time ago I asked the question whether the raw material for these great factories at Belding was produced in our own country. The following, from the Grand Rapids *Herald*, seems to answer the question. The clipping was sent us by A. H. Dines, Cedar Springs, Michigan.

The Russo-Japanese war has a peculiar significance for Belding, in which the principal industry is silk-manufacturing. The silk-factories employ hundreds of men and women, and a long continuance of the war would mean that they would have to shut down for a lack of raw material. Over half the silk used in the mills comes from Japan, and the remainder comes from China, the firms of the Richardson Silk Co. and the Belding Brothers using only the finest silks, which come from the countries named. At present enough stock is on hand and under shipment to run the mills for several months yet, but not later than long enough to fill the spring orders, the fall sales being extra large.

Convention Notice.

MEETING OF TEXAS BEE-KEEKERS' ASSOCIATION, JULY 5 TO 8, 1904.

PROGRAM.

Tuesday, July 5, 10 A. M.

Opening exercises, president's address, secretary's report, etc.

Tuesday, 2 P. M.

What are the essential qualities for making a successful bee-keeper?—L. Stachelhausen, Converse, Tex. Present standing of foul-brood in Texas.—Louis H. Scholl, College Station, Tex. The 4x5 section super, and its advantages.—Dr. J. B. Treon, Floresville, Tex.

Tuesday, 8 P. M.

Natural or artificial increase; which is the better?—W. O. Victor, Wharton, Tex. The shallow or divisible, or the regular Langstroth; which?—W. H. Laws, Beeville, Tex.

Wednesday, 9 A. M.

Production and proper grading of section honey.—W. E. Crandall, Floresville, Tex. Importance of uniform standard cans for Texas.—Udo Toepperwein, San Antonio, Tex.

Wednesday, 2 P. M.

Criticism of the Laws baby-nuclei for mating queens.—Discussion led by O. P. Hyde, Floresville, Tex. The St. Louis convention, and when and how to go.—H. H. Hyde, Floresville, Tex.

Wednesday, 8 P. M.

How many colonies will a good range support, and what should a bee-keeper pay for such location?—J. K. Hill, Uvalde, Tex. Successful management of out-apiaries.—Carl Wurth, Floresville, Tex.

Thursday, 9 A. M.

Discussion.

Thursday, 2 P. M.

Convention will open at time named. Come early, and take part.

Louis H. Scholl,
Sec'y-Treas. Texas Bee-keepers' Association,
College Station, Tex.
O. P. Hyde,
Committee on Program.

Red Clover Italian Queens.

Fine Northern bred, originated from best long-tongued Red Clover breeders in United States; three-banded strain work on red clover, bred for business in full colonies under swarming influence; gentleness, honey-gathering, and wintering qualities are prime object. Untested, $1.00; six, $5.00; tested, $2.00; six, $10.00; select tested, $3.00. After July 1st deduct 25 per cent. Satisfaction guaranteed. Remit by money-order. **Isaac F. Miller, Knoxdale, Pa.**

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

ITALIAN QUEEN BEES and NUCLEI. Strictly high grade, and a pleased Customer every time.

Untested Queens	$ 75
Tested "	1 00
Comb of Brood and Bees	1 25

All nuclei put up and shipped by myself, personally.

My Stock of Supplies

is fresh from the factory, and fully up-to-date in every detail. My sections are not dried out and they do not break in bending.

What They Say.

Winchester, Ind., May 10, 1904.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—The large order I sent you for supplies came the second day after I mailed the order, and every article was of the very best quality. I can say, with the greatest pleasure, that my business relations with you have been of an exceedingly pleasant nature. The hundreds of dollars' worth of supplies that I have bought of you were of the very finest material and style that I have ever seen, and the promptness and exactness with which you have filled my orders has made me many dollars because you have always sent me every article just as I ordered, and as prompt as railroad service could carry them to me. Wishing you continued success, I remain as ever, your friend and customer, C. O. YOST.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

Last winter was a severe test on Bees,

But Quirin's Famous Leather-colored Italians

wintered on their summer stands, within a few miles of bleak Lake Erie. . . .

Queens now Ready to go by Return Mail.

Our new circular now ready to mail.

ADDRESS ALL ORDERS TO

Price of Queens Before July First.

	1	6	12
Select	$1 00	$5 00	$9 00
Tested	1 50	8 00	15 00
Select Tested	2 00	10 00	18 00
Breeders	4 00		
Straight Five-band Breeders	6 00		
Palestine Queens	2 00	10 00	18 00
Two-comb Nuclei, no queen	2 50	14 00	25 10
Full Colony on eight frames	6 00	30 00	
Four fr's brood, 4 fr's fdn	5 00	25 00	

Special low prices on Queens and Nuclei in 50 and 100 Lots. Nuclei on L. or Danzenbaker frames.

Quirin-the-Queen-Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200

Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1.50; select tested $2.50; breeders $4.00 to $7.00.
Illustrated price list free for the asking.

W. O. VICTOR,

Queen Specialist. Wharton, Tex.

Italian Queens that Please.

Iowa City, May 9, 1904.

A year ago I bought an untested queen of you; she proved to be purely mated and one of the best breeders I ever owned. A. E. AULT.

Untested queens, 75c each; $7.50 per dozen.
Tested queens, $1.00 each; $10.00 per dozen.

GEORGE J. VANDE VORD, Daytona, Fla.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. Laws, Beeville, Texas.

---HONEY QUEENS---

Golden and Leather-colored Italians, tested, $1.25; untested, $1.00.

H. C. TRIESCH, Jr., DYER, ARK.

1904.

TRY J. W. TAYLOR'S record-breakers. They are three-banded leather-colored Italians. They have broken all records as honey-gatherers. I have made a specialty of queen-breeding for ten years to secure the best bees, and now I have them.

Untested, 75 cts., or $8.00 a dozen; tested, $1.25 each; select tested, $1.75; each. Breeders, the best, $4.00 each.

I have three yards, and can fill all orders by return mail. I guarantee safe arrival and satisfaction. J. E. Atchley says the finest queen he ever owned he bought from me. Try one. **J. W. TAYLOR, Ozan, Ark.**

CARNIOLANS AND ITALIANS.

Untested Queen $1.00; Six for $5.00; Twelve for $9.00. Tested $1.50. Best Breeder $3.00. Imported $5.00.

Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

F. A. LOCKHART & CO.,
Lake George, - New York.

Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years. We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness.*

Italians.

Gentle, prolific, swarm very little, hustlers to work, and a red-clover strain.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos. Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

OUR SPECIALTIES

Cary Simplicity Hives and Supers, Root and Danz. Hive and Supers, Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season. 32-page Catalog Free

W. W. CARY & SON, Lyonsville, Mass.

QUEENS! ATTENTION! QUEENS!

During 1904 we will raise and offer you our best queens. Untested, 75 c. each; $4.25 for 6; $8 00 for 12. Tested queens, $1.50 each; best breeders, $5 00 each. One, two, and three frame nuclei a specialty. Full colonies, and bees by the carload. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18, Beeville, Texas.**

Doolittle Says:

"Be very choice of this Breeder; if ever a Queen was worth $100, she is." Then we have Breeders from our strain that gave the big yields in '94, and which some of the largest bee-keepers in Cuba say can't be beat. They swarm but little and are **honey-getters.** We are breeding for **honey-gatherers** more than color. We cull our cells and queens, and **warrant** queens purely mated. Prices: Select untested, $1.00; select, $1.25, tested, $1.50; select, $2 00; breeders, $3.00, $4 00, and $5 00. Circulars free.

J. B. CASE, Port Orange, Florida.

Queens for Sale

BEST Golden and Leather-Colored Italian Queens. Untested, 75c each; tested, $1 50 Holyland Queens, best for Southwest, $1.00 for warranted; $1 50 tested. Breeders, $3.00 to $5 00 each.

-Slone Bee Company,-
Slone, La.

Leather Colored Italians For Sale!

Strain took first premium Minnesota State Fair, 1901 and 1902. Ready May 1st. Eight or nine frame Langstroth hives, $5.00; ten frame, $6.00 each, f. o. b. Milaca.

W. R. ANSELL, Mille Lacs Apiaries,
MILACA, MINN.

THE DEMAND FOR

MOORE'S STRAIN OF ITALIANS

becomes greater each year. The following report shows the reason why:

EXCEL IN STORING CAPACITY.

B. S. Taylor, a large honey-producer of Perris, Cal., who sent me an order for 75 queens at one time, says: "I have a large apiary mostly of your stock, and I have never, in my 30 years' experience, seen so quiet and gentle bees to handle, and in storing capacity they excel anything I have ever had."

Untested queens, $1 00 each; six, $5.00; dozen, $9.00. Select untested queens, $1.25 each; six, $6 00; dozen, $11.

Safe arrival and satisfaction guaranteed.
Descriptive circular free.

J. P. MOORE, Morgan, Pendleton Co., Key.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange a two-frame Cowan extractor, little used, for latest pattern four-frame Cowan. **B. WALKER** Clyde, Ill.

WANTED.—To exchange five-gallon can of pure honey for its equal quantity of maple syrup
W. H. YENNEY, Glassboro, N. J.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange 60 lb cans for honey, cash, or offers. No. 1 at 50 cts. per case; No. 2 at 40 cts.
G. L. BUCHANAN, Holliday's Cove, W. Va.

WANTED.—A honey-extractor, 4 frame reversible Cowan. State condition and lowest cash price.
J. CHENOWETH, Albia, Iowa.

WANTED.—Original articles instructing novices about queen-rearing for July Rural Bee-keeper.
W. H. PUTNAM, River Falls, Wis.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange catalog describing the best hive in existence, a double-walled hive for only 20c extra, for your name and address
T. K. MASSIE, Tophet, W. Va.

WANTED.—Bees in Dovetailed or Langstroth hives, full colonies in the immediate vicinity of Chicago. Write promptly, stating number of colonies offered, condition, price at which they will be delivered in Chicago, etc. **THE A. I. ROOT Co.**, Medina, Ohio.

WANTED.—Bees in Danzenbaker hives in the vicinity of New York City, Philadelphia, Chicago, Cincinnati, and St. Paul. Must be free from disease. Red-clover stock preferred, though almost any grade can be used. Write, giving price wanted, condition of bees, combs, etc. Address The A. I. Root Company, Medina, Ohio.

Addresses Wanted.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address **HENRY ALLEY**, Wenham, Mass.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1 00 per month; $10.00 per year. Daily, except Monday.

Situations Wanted.

WANTED.—A situation, with a bee-keeper after June 1, by a young man of some experience. No liquor or tobacco used. **O F. BAST**,
Lintonville, Minn.

WANTED.—Situation within 500 miles or more of Chicago with experienced bee-keeper. Wants to learn the business. Do not object to other work.
GEO. A. GILLESPIE, 104 Warren Ave., Chicago, Ill.

Help Wanted.

WANTED.—Man to work in apiary five months. Address, stating age, experience, and wages
W. HICKOX, Berthoud, Col.

For Sale.

FOR SALE.—Pure Angora kittens, $5 00 a pair.
A. T. RICE, Paris, Ky.

FOR SALE.—Italian queens from Root's red clover stock; 65c each, or $7.00 per doz. Address
IVEY SEAWELL, Fort Deposit, Aia.

FOR SALE.—At 75 cents each, untested queens, from selected Italian mothers. Satisfaction guaranteed.
E. A. SIMMONS, Fort Deposit, Alabama.

FOR SALE.—Single-comb White Leghorn eggs from extra laying strain. 15 $1.00. 30, $1 75; 100, $4.00.
C. M. WOOLVER, Richfield Springs, N. Y.

FOR SALE.—A few hundred cases of 60-lb. honey-cans, good as new, at about half their real value.
J. A. BUCHANAN & SONS, Hollidays Cove, W. Va.

FOR SALE.—Second-hand 60-lb. cans, two in a case, in lots of ten, free from rust on the inside, and practically good as new, at 40c per case, f. o. b. Chicago.
B. WALKER, Clyde, Ill.

FOR SALE.—Five-gallon square tin can used for honey, at about half price of new cans. For prices, etc., address **OREL L. HERSHISER**,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—57 New AE5 8 fr. Root's Dovetailed hives in flat for $55.00, or 10 for $10; also 10 new 2S 8-frame supers in flat for $3.50.
R. S. CHAPIN, Marion, Mich.

FOR SALE.—150 hives, nailed and painted, and in good condition. Frames L. size, 8 frames to the hive. Price 75 cts. each. Will exchange part for wax. Also foundation at 50 cts.
F. H. MCFARLAND, Hyde Park, Vt.

FOR SALE.—Italian bee with red-clover queen; 3-frame nucleus on Danz. frame, so you can make a start with Danz. hives, $3.50. Standard frames the same. Orders shipped immediately.
F. H. FARMER, 182 Friend St., Boston, Mass.

FOR SALE.—500 good supers to hold 28 4¼x4¼ sections all complete; also one Given foundation-press, used but little. Supers 12 cts each F. O. B.. Will exchange for wax; $8.00 for press.
ARTHUR BOOMHOWER, Gallupville, N. Y.

FOR SALE.—Apiarian outfit of small house and acre of land with 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot. **X Y Z, GLEANINGS.**

FOR SALE.—A combined corn-husker, shredder, and ensilage-cutter, at 25 per cent of first cost An improved machine, used last year only. A pony self-binder, used three days; same terms. Machines in perfect running order. A set of large and small corn-mill stones; an automatic shingle-mill, cheap, if sold soon. **B F. AVERILL**, Howardsville, Va.

FOR SALE.—An apiary and farm, consisting of 120 acres good grazing land, and only fifteen minutes' walk from the city of Cardenas, and on the public road; having on said place 350 hives (American system), all necessary supplies to handle these, good house on grounds, numerous fruit-trees, plenty of shade for bees, thirty odd head of cattle raised on the place, among these six fine American milch cows (Holstein stock) selling nice little amount of milk daily, good-riding saddle-horse, ox wagon with fine yoke oxen in fine condition, two good water wells, large pine-apple grove now producing, and with capacity to plant, if required, 60,000 henequen plants. Sell for cash, or on time with satisfactory guarrantee. Address
AMERICAN BEE HIVE, P. O. Box 44, Cardenas, Cuba.

Special Notices

By Our Business Manager.

EXTRACTED HONEY.

We keep on hand a large stock of extracted honey from different sources, and are prepared to supply at the prices shown below. The following flavors are usually in stock.

PACKAGES.

By far the largest part of our honey comes put up in the 60-lb. square tin cans, two cans in a case. We also get some in kegs and barrels. We agree to furnish it only in such packages as we happen to have. Unless you find price quoted for different packages, it is understood that we furnish only in 5-gallon and 1-gallon cans.

PRICES.—F. O. B MEDINA, CHICAGO, OR PHILADELPHIA

Kind.	In single five-gallon cans.	1 case of 2 five-gallon cans.	10 cases of 2 five-gallon cans.	In one-gallon screw-top cans.	Case of 6 or 10 one-gallon cans.
	per lb	per lb	per lb	per gal	per gal
White Clover	8½	8	7½	1 20	1 10
Basswood	8½	8	7½	1 20	1 10
Alfalfa	8½	8	7½	1 20	1 10
Orange	7	6½	6	1 10	1 00
Amber	6½	6	5½	1 00	90

AIKEN HONEY-BAGS.

We did not include these bags in our catalog this year because we wanted to see them more generally tested in different sections of the country, and proven a satisfactory package everywhere before doing so. We are prepared to supply them, and have arranged for a 1-lb. size in addition to the four other sizes sold heretofore. We are now supplied with all sizes.

1-LB. SIZE, 3½x5½.

100	$ .65	1000	$5.50
500	3 00	5000 @	5.25

2 LB. SIZE, 5x7½.		5-LB. SIZE, 7x10.	
100	$ .80	100	$ 1 20
500	3 75	500	5.50
1000	7 00	1000	10 50
5000 @	6.60	5000 @	10 00

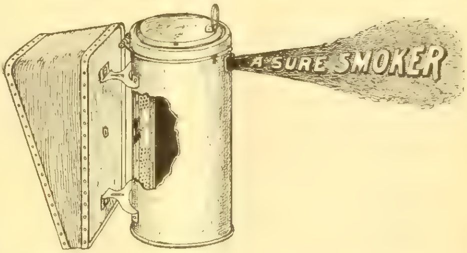
3½-lb. SIZE, 6x9½.		10-lb. SIZE, 10x10½.	
100	$1.00	100	$ 1 50
500	4.75	500	7.00
1000	8 75	1000	13 50
5000 @	8.25	5000 @	13 00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2 00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

DANZENBAKER
20th Century
SMOKER.



A SMOKER SURE FOR $1.00.

GUARANTEED TO SUIT, OR DOLLAR BACK.

The last in the field, combines the best feature of others, with special ones all its own.

It has a perforated draft grate at the side that strengthens the fire cup and holds a removable lining and packing in place, that keeps the fire-cup cool, adding to its durability. This lining can be replaced at a small cost.

The draft-hole is midway of the fire-cup, directly opposite the only opening in the bellows, from which the air is forced and deflected upward or downward, or both ways, as desired, to secure a dense or hot or cool volume of smoke, which is determined by the filling and lighting of the fuel.

It is superior in make-up and material.

It has no parts that can clog with soot.

It will continue to smoke from three to ten hours, in light work, until all the fuel is consumed.

It wins friends that willingly recommend it to others.

Full directions for use, and preparing special fuel for subduing bees and destroying the eggs and larvæ of the wax-moth, with each smoker.

PRICES:

$1.00 each; three for $2 70 when sent with other goods. By mail, each 25 cents extra.

ADDRESS

F. DANZENBAKER
Care The A. I. Root Co., Sec. 1, W. Annex, Hort'l. Bld.,
St. Louis, - Missouri.

More Room

We now occupy the greatest floor space, and carry the largest stock of goods, that we ever did before. Our specialty is

Wholesale and Retail

Lewis' Goods

AT

Factory Prices.

Dovetailed hives, Wisconsin hives, Champion Chaff hives, Improved Langstroth Simplicity hives, and our new hive which we call the Acme hive. Thousands of pounds of comb foundation; millions of sections in about 30 different sizes and styles, and everything the bee-keeper needs.

Do not fail to find out all about the

ACME HIVE.

Hundreds of them already sold, this year. Catalogs and plenty of information free. Let us estimate on your order.

C. M. Scott & Co.,
1004 E. Washington St.,
Indianapolis, = Ind.

Do You Need Queens?

If so, you want none but the best. **Prolific Queens?**—they mean large colonies. **Good Workers?**—they mean full supers. We can fill your orders for such queens by return mail, from our choice strain of three band Italians, which are not excelled as honey-gatherers. : : :

Choice tested queens, $1.00 each; untested 75c; per dozen, $8.00. *Send for circular.*

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

Virginia Queens

Italian queens secured by a cross, and years of careful selection. From red-clover queens and Superior stock obtained from W. Z. Hutchinson. I can furnish large vigorous untested queens 75 cts.; after June 15th, 60 cts.; tested queens, $1.00; after June 15th, 75 cents.
Write for discount on large orders.

CHAS. KOEPPEN,
Fredericksburg, - Virginia.

BEE-KEEPERS' SUPPLIES FOR KANSAS

Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*
A. W. SWAN & CO. Centralia, Kan.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published ***The American Bee-Keeper*** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

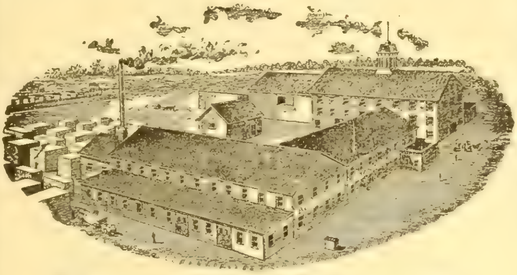
The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

I. J. Stringham, New York,

Keeps in stock a complete line of

Apiarian supplies

Colonies of Italian bees in new hive			$8.50
Three-frame nucleus colonies with Italian queen			3.75
Tested Italian queen	1.25	Untested queen	85
Silk-faced veil, best made	.40	Catalog	FREE

Apiaries--Glen Cove, L. I. Salesroom--105 Park Place, N. Y.

NOT IN THE TRUST.

The oldest bee-supply house in the East. Sells the BEST GOODS at former prices.

Send for Catalog.

J. H. M. COOK,
70 Cortlandt St., New York City.
Tested queens now ready by return mai

Pacific Coast Buyers

are directed to the announcement that

SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California,

carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundation, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added. This saves buyers $1 50 per 100 pounds in freight or 36c on each hive.

HAGEN'S

Comb Foundation Factory

(*WEED PROCESS*).

Is turning out a grade of foundation that is not surpassed by any made, and is guaranteed to give perfect satisfaction. A share of your trade is solicited. Wax worked up for bee-keepers also. In the market at all times for beeswax at the highest market price. Samples of foundation sent on request.

H. F. HAGEN,
Denver, - - - Colorado.
601 High Street.

SPECIAL NOTICE

Special Notices By Our Business Manager.

HONEY BAGS.

We are now in receipt of a plentiful supply of Aiken honey-bags, which we can furnish promptly at the prices named on another page. Enquiries solicited.

WANTED.—J. E. KOCH, FORMERLY OF MT. PISGAH, LAGRANGE CO., IND.

The above person is wanted in order to turn over to him considerable property left by the death of his parents. He was last heard from March 21, 1901. He is wanted by his brother, S. R. Koch, of Mifflin, Ohio.

PERFORATED ZINC STRIPS.

In our last issue the notice relating to perforated zinc strips makes me say, "We can not *fuss with* any more of the strips $\frac{5}{16}$ wide," when it should read, "We can not *furnish* any more of the strips $\frac{5}{16}$ wide, except such stock as may be in the hands of our dealers. Having taken out the old machine, we can not make them on the new one other than $\frac{3}{16}$ inches wide.

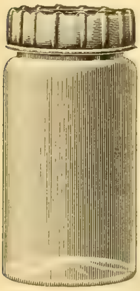
BEESWAX MORE PLENTIFUL.

Large quantities of wax have been arriving the past month, and we have in stock over twenty tons—more than we shall need to finish this season. The heavy winter losses of bees have increased the supply of wax. We are obliged to lower the price earlier than we usually do. From now till further notice we will pay 28c cash, 30c trade, for average wax delivered here.

BUSINESS OUTLOOK.

Orders from the middle West, especially Missouri, Iowa, and Illinois, are still crowding us, and we are still seven or eight cars behind orders. We are filling most orders with reasonable promptness and our branches and agencies are generally fairly well supplied with goods. We have a surplus stock of comb foundation, but are well sold up on sections. We have in nine months disposed of several million more than in twelve months of the previous year. With the present prospects for white clover promising a good honey crop, the demand for sections will continue unabated for two or three months longer.

NEW SIMPLEX HONEY-JAR.



We have found a new glass jar for one pound of honey, which we think surpasses any other style we ever offered. It has a glass top which screws on to the glass jar with a rubber gasket between. The joint is on a taper so that, the further you screw the cover on, the tighter it makes the joint. It can be sealed absolutely air-tight; has no metal to rust or corrode. It is about ¾ inch higher than the No. 25, which improves its appearance. We sell them at the same price as the No. 25, and have a carload in stock ready to fill orders. We first learned of this jar nearly a year ago, but have said nothing about it until we had the stock in hand ready to supply. We still have some No. 25 in stock for those who may prefer to continue with it. We believe, however, the Simplex jar will take the place of the No. 25.

A LIST OF THOSE WHO HAVE BEES FOR SALE.

In our May 1st issue we announced that, as an accommodation to those who had lost heavily and need bees to start with, we would publish a list of names of the parties having bees to sell in our next issue, but on account of the absence of the writer when the forms were closing; the matter was overlooked. The following list of names has been compiled from letters received since that date. It is possible that a few names have been omitted, unintentionally however, as frequently the request has been embodied with matter going to other departments and may have failed to reach the proper department at this writing. We assume no responsibility for any deals made; some of the parties we know personally and can recommend; others we know nothing about. Some of them have one or two colonies only—others have a large number, and the bees are all the way from blacks to fine Italians and the hives are of various patterns. Full particulars in every case must be learned by inquiry. This list will not be repeated, and names should not be sent us for this purpose after this date. If any names have been omitted that have been received prior to this date, we will give such a position in our next issue if our attention is called to the matter at once.

In addition to the list of names herewith, we call the attention to those needing bees to our advertising columns where prices and descriptions are to be found without the necessity of correspondence:

E. A. Simmons, Fort Deposit, Lowndes Co., Ala.
Louis K. Smith, Grant, Brevard Co., Fla
E. K. Arford, Clark Center, Clark Co., Ill.
E. E. Starkey, 1126 Benson Av., Evanston, Ill.
G. W. York & Co., 334 Dearborn St., Chicago, Ill.
D. E. Andrews, Bloomington, Monroe Co., Ind.
V. Heineman, Valparaiso, Porter Co., Ind.
O. H. Hyatt, Shenandoah, Page Co., Iowa.
A. Carder, Rt. 1, Ludlow, Kenton Co., Ky.
Mrs. S. Carder, Rt. 1, Ludlow, Kenton Co., Ky.
L. E. Evans, Onsted, Lenawee Co., Mich.
Otto Kleinow, 122 Military Ave., Detroit, Mich.
C. M. Nichols, Addison, Lenawee Co., Mich.
O. H. Townsend, Otsego, Allegan Co , Mich.
Mrs C. T. Ward, Albion, Calhoun Co., Mich.
Wm. H. Bright, Mazeppa, Wabasha Co., Minn.
A. E. Johnson, Rt. 2, Dunnell, Martin Co., Minn.
John Anderson, Oriskany Falls, Oneida Co., N. Y.
J. H. M. Cook, 70 Courtlandt St., New York, N. Y.
Hiler Brothers, Plattsburgh Clinton Co.. N. Y.
Joel Kinney, Geneseo, Livingston Co., N. Y.
L. R. Partridge, North Cohccton, Steuben Co., N. Y.
Williamson & Newell, Trumansburg, N. Y.
Mrs. L. A. Burton, Speidel, Belmont Co., Ohio.
A. L. Martin, Leonardsburg, Delaware Co., Ohio.
Mrs. M. P. Rayburn, London, Madison Co., Ohio.
Henry Shaffer, 2860 Harrison St., Cincinnati, Ohio.
H. C. Burdan, 549 King St., Pottstown, Pa.
Cath'ne McCaslin, 308 Pittsburg St., New Castle, Pa.
G. N. Wentworth, Torpedo, Warren Co., Pa.
G. W. Gates Bartlett, Shelby Co., Tenn.
J. B. Neil, Filbert, York Co., S. C.
Butts Brothers, Normanna, Bee Co., Texas.
The Jenney Atchley Co., Beeville, Bee Co., Texas.
Charles Fisk, Tomah, Monroe Co., Wis.
J. N. McColm, Plymouth, Sheboygan Co., Wis.
Theo. Weiler, Rootcreek, Milwaukee Co., Wis.

SOLD OUT.

The attention of our readers is directed to the following letter:

Dear Sir: Doubtless complaints are being filed against me by your readers as a result of my inability to keep up with the correspondence resulting from a single insertion in GLEANINGS, now two issues old. By former experience I know this will keep up for three months. I have returned money amounting to many times the value of the hives advertised. This is a responsibility that I do not enjoy. Help me out if you can. S. B. JACKSON.
Pittsburg, Pa., May 23.

We hope any one who has addressed Mr. Jackson without sending money will not expect a reply, for it is hard enough to answer the letters and return money without having to answer a lot of inquiries in addition, especially where nothing is sent for return postage. In this connection allow us to remind our readers having bees or property for sale, that our "Want," "For Sale," and "Miscellaneous" columns — in fact, any of our advertising columns, will bring you good returns. We get abundant testimony to this effect every day.

THE POULTRY REVIEW, containing monthly a comprehensive review of the best poultry papers published; 50c a year; with this paper, $1.00 a year. Before subscribing elsewhere get our clubbing rates.
The Poultry Review, Dept. IX, Bustleton, Pa.

1884 **PRICE LIST OF** 1904

Italian Queens and Bees

Untested Queens, each	$ 75
Tested Queens, each	1 00
Select Tested Queens, each	2 00
Two-frame Nucleus (no queen),	1 00
Three-frame Nucleus (no queen),	1 50
Four-frame Nucleus (no queen),	2 00
Full Colony, eight-frame, (no queen)	4 00

We are booking orders for Queens and Bees at the above prices.

We breed with scientific, intelligent methods from the best Imported and Long-tongue stock. Cheaper queens may be had elsewhere, but we make no effort to compete with the prices of the CHEAP QUEEN men. Our stock is worth our price. You will be pleased with our stock and our prompt and careful attention to your orders. **We guarantee it.**

64-page Catalog of Supplies Free.

J. M. JENKINS,

WETUMPKA, - ALABAMA.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in
BEE-KEEPERS'
SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

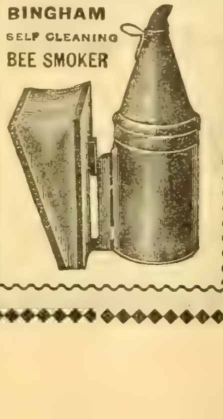
Dittmer's Foundation
RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

GUS. DITTMER, - - - AUGUSTA, WISCONSIN.



Bingham Smokers

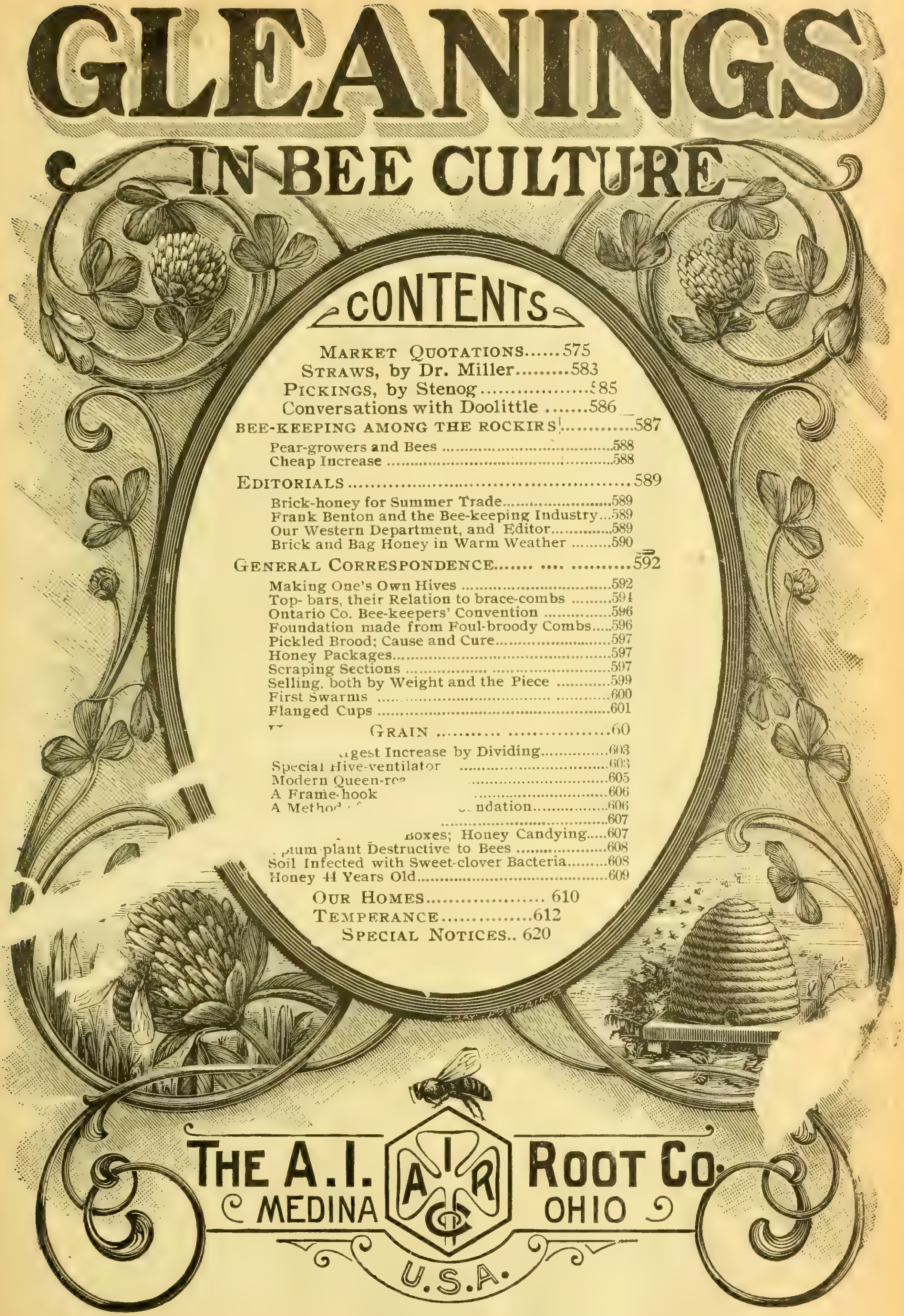
Bingham Smokers are the originals, and have all the improvements, and have been the **Standard of Excellence** for 23 years. No wonder Bingham's four-inch Smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4 inch stove, per mail, $1.50; 3½ inch, $1.10; 3-inch, $1.00; 2½-inch, 90 cents; 2-inch, 65 cents.

T. F. Bingham, Farwell, Mich.

Volume XXXII. JUNE 15, 1904. Number 12

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

Entered at the Postoffice, at Medina, Ohio, as Second-class Matter.

PROMPT SHIPMENTS OUR SPECIALTY

If you want your orders filled within 24 hours send them to us. We have the largest stock in Michigan, and can ship at once.

Beeswax wanted at highest market prices.

LEWIS C. & A. G. WOODMAN,
GRAND RAPIDS, MICH.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

Beeswax wanted.

George E. Hilton, Fremont, Mich.

Hurry Up Orders

FOR

Hives, Sections, Foundation, etc.

The supplies you order this month you want "right away"---"as soon as possible." That is what we are doing for others, let us do it for you. :: :: ::

For Root's Goods in Michigan---In a Hurry.

M. H. HUNT & SON, BELL BRANCH, MICH.

C. H. W. Weber,
Headquarters for
Bee-Supplies
Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

* * *

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Queens Now Ready to Supply by Return Mail; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above. **Prices for Untested, during June, one. 75; six, $4.00; twelve, $7.50.**

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white, and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,
Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

MILWAUKEE.—The situation of this market on honey has not changed materially since our last report. The over supply continues and the demand is just now quite slow, and usual dullness incident to this season of the year when small fruits are provided for consumers. The demand is a little better for extracted than comb, but all kinds are very slow. We think, however, that before new crop comes the choice old crop will be wanted at fair values. Hence we don't think the old stock should be sold at ruinous prices. We quote fancy at 11@12; A No. 1, 10@11; off qualities entirely nominal. Extracted, in barrels, pails, and cans, white, 6½@7½. Beeswax, 28@30

A. V. BISHOP & CO.,
June 13. Milwaukee, Wis.

PHILADELPHIA.—The comb honey season is now about over. There are not enough sales to fix any price. For the last ten days, commission men have been accepting any offer they could get, but did not fix any market value. Extracted honey seems a little off in price, some lots from the South being offered as low as 5c in barrels. We quote Southern extracted at 6c; fancy white clover, 7c. Beeswax is a little off; 29c for bright yellow is the top market price. We are producers of honey and do not handle honey on commission.

WM. A. SELSER,
June 8. 10 Vine St., Philadelphia, Pa.

TOLEDO.—The market on comb honey remains quiet as usual at this time of the year, but we wish to state that honey is nearly exhausted in this section of the country. We are closing out our No. 1 at 15c. Fancy white clover would bring 14@15. Extracted, in barrels, white clover, 6@6⅛; cans, 7@7½; amber, in barrels, 5@5½; cans, 6@6½; Beeswax, 26@28.

June 8. GRIGGS BROS., Toledo, O.

CINCINNATI.—Since warm weather set in, hardly any sales of comb honey are made; what little there was sold was fancy white, and brought from 12½@13½. Extracted has a fair demand. I quote same as follows: Amber, in barrels, 5¼@5¾; in cans, ½c more; alfalfa, 6½; fancy white clover, 7½. Nice yellow beeswax, 30c.

C. H. W. WEBER,
June 7. 2146 Central Ave., Cincinnati, Ohio.

BUFFALO.—There is very little demand for honey; can occasionly sell a case of nice white comb at 12@12½, but no sale for under grades; a little demand for extracted at 6@6½ for white; 5@5½ for dark. Beeswax, 28@32.

W. C. TOWNSEND,
June 7. 178 Perry St., Buffalo, N. Y.

KANSAS CITY.—The demand for honey in cases remains steady, at prices ranging from $2.75 to $3.00. Old stock is about cleaned up, and no new coming as yet; no inquiry for extracted; in fact, can not sell it at any price. Good demand for beeswax at 30c.

C. C. CLEMONS & CO.,
June 9. Kansas City, Mo.

ST. LOUIS.—Our honey market has not undergone any change since our last. The quotations below are merely nominal, as trade is almost at a standstill. We quote as follows: Fancy comb honey from 12@14; A No. 1, 11@12: No. 1, 10@11; No. 2, about 9; No. 3, 7@8 Extracted, 5@5½ in cans, and 4@4½ in barrels. Dark and other inferior grades will bring less.

R. HARTMANN & CO.,
June 10. St. Louis, Mo.

DENVER.—We have lately received a few small consignments of comb honey which is selling at $2.75 per case for No. 1 white, and $2.50 per case of 24 sections for the light amber. Market is weak as small fruits are quite plentiful. Extracted, white, 7¼@7¾; light amber, 6½@7 Beeswax, 24@28c.

THE COLO. HONEY PRODUCERS' ASS'N.,
June 11. 1440 Market St., Denver, Colo.

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.

G. W. WILSON, R. R. No. 1, Viola, Wis.

FOR SALE.—New crop fancy white extracted honey, in 60-lb. cans or 32 gal. barrels.

G. L. BUCHANAN, Holliday's Cove, W. Va

FOR SALE.—Fancy basswood and white-clover honey; 60-lb. cans, 8c; 2 cans or more, 7½c; bbls., 7½c.

E. R. PAHL & CO., 294 Broadway, Milwaukee, Wis.

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THE A. I. ROOT CO., Medina, Ohio.

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BACH, BECKER & CO., Chicago, Ill.

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265-267 Greenwich St., New York.

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THE A. I. ROOT COMPANY, Medina, O.

Convention Notice.

THE following note just received from General manager France will explain itself:

National bee-keepers' annual meeting in St. Louis, Sept. 27 and 28. International (many foreign bee-keepers expected).

Sept. 29, National day

Sept. 30, Inspectors' day (diseases of bees discussed by twenty inspectors).

Full program later.

The general manager will have in above convention hall, a large map of United States, Cuba, and Europe; on each State a bracket containing one-pound samples of every kind of honey produced in that State, all to be properly labeled—an instructive object-lesson.

Several new city ordinances of late forbid keeping bees in city. No danger my being out of a job very soon.

To-day closes inspector year. Monday I begin on my eighth year of this work. About 65 per cent winter loss in Wisconsin. Will send my annual report soon.

N. E. FRANCE.

MEETING OF TEXAS BEE-KEEPERS' ASSOCIATION, JULY 5 TO 8, 1904.

PROGRAM.

Tuesday, July 5, 10 A. M.

Opening exercises, president's address, secretary's report, etc.

Tuesday, 2 P. M.

What are the essential qualities for making a successful bee-keeper?—L. Stachelhausen, Converse, Tex. Present standing of foul-brood in Texas.—Louis H. Scholl, College Station, Tex. The 4x5 section super, and its advantages.—Dr. J. B. Treon, Floresville, Tex.

Tuesday, 8 P. M.

Natural or artificial increase; which is the better?—W. O. Victor, Wharton, Tex. The shallow or divisible, or the regular Langstroth; which?—W. H. Laws, Beeville, Tex.

Wednesday, 9 A. M.

Production and proper grading of section honey.—W. E. Crandall, Floresville, Tex. Importance of uniform standard cans for Texas.—Udo Toepperwein, San Antonio, Tex.

Wednesday, 2 P. M.

Criticism of the Laws baby-nuclei for mating queens.—Discussion led by O. P. Hyde, Floresville, Tex. The St. Louis convention, and when and how to go.—H. H. Hyde, Floresville, Tex.

Wednesday, 8 P. M.

How many colonies will a good range support, and what should a bee-keeper pay for such location?—J. K. Hill, Uvalde, Tex. Successful management of out-apiaries.—Carl Wurth, Floresville, Tex.

Thursday, 9 A. M.

Discussion.

Thursday, 2 P. M.

Convention will open at time named. Come early, and take part.

LOUIS H. SCHOLL,
Sec'y-Treas. Texas Bee-keepers' Association,
College Station, Tex.
O. P. HYDE,
Committee on Program.

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Delanson, New York, July 10, 1902.

MR. ROBEY Dear Sir: The queens that I bought of you two years ago were the finest lot, and the best honey-gatherers of any queens I ever had, and I have had over 1000 queens from the principal queen-breeders of the United States. E. W. ALEXANDER.

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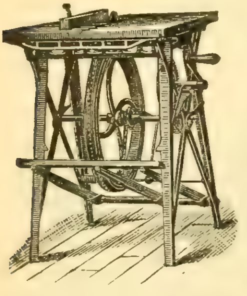

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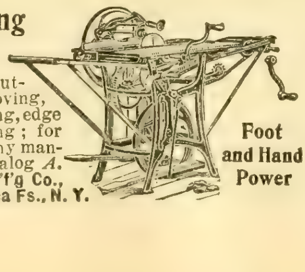

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To prevent the adulteration of honey.

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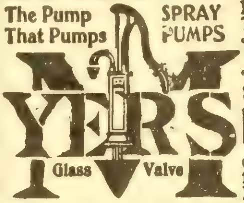

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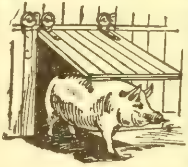

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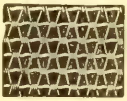

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

Published by The A. I. Root Co.
$1.00 Per Year Medina, Ohio.

Vol. XXXII. JUNE 15, 1904. No. 12

Stray Straws

By Dr. C. C. Miller.

AT THE RISK of being called a careless observer by Bro. Doolittle, I must say that I have had satisfactory results with leather-colored Italians as comb-honey producers.

THAT MAN MURRAY is trying to get me into trouble by sending what he calls a straw with thorns on it, asking the following: "When blackberries are red why are they green?" I don't know; but *are* blackberries ever red? If a berry is either green or red, how can it be a *black*berry?

A. I. ROOT tells us, p. 558, that when the balls of earth of three or more plants are squeezed together there is no trouble in separating them when they reach their destination. Beg pardon, old friend; but I have had so much trouble in that way that I'd give more to have each plant wrapped separately.

AT LAST we are told for the first time that phacelia is of some value in this country for fodder, p. 553; but we are also told that it is hardly worth while where alfalfa flourishes. Now can Mr. Luhdorff kindly tell us any thing about the nectar on an acre of phacelia as compared with an acre of alfalfa?

"COLUMBIA" foundation, which Stenog mentions, page 533, seems to be the same as that of which J. Y. Detwiler, if I am not mistaken, sent out samples many years ago. Possibly they've discovered some little kink in Germany by which it can be made a success. The name of the man who puts it on the market, Otto Schultz, is a pretty good guarantee as to its value.

THAT QUEEN that laid eggs on the side of the cell, p. 551, reminds me that once I had an imported queen that did so when I first got her, but after a few days she laid all right. [Yes, we have had other examples of a similar character. Sometimes it is difficult to get a customer who has paid $6.00 for a queen to be satisfied until he can see what she will do. He wants another one right away.—ED.]

EXCLUDERS are almost a necessity for comb-honey colonies with contracted brood-nest, says the editor, p. 552. Perhaps they are just as much a necessity with full brood-nest if small starters are used in sections with little or no drone comb in the brood-nest. In that case the bees will build drone comb in the sections, and the queen will go up to lay there. With full brood-nest, and sections filled with foundation, I don't find excluders necessary. [I accept the correction.—ED.]

I SEE by the dailies that the postoffice department is soon to establish a censorship over newspaper advertisements, and papers with objectionable advertising are to be excluded from the mails. When that goes into operation, don't you think the mails will be light for a time? [This is a splendid move. GLEANINGS has nothing to fear from objectionable matter in its advertising pages. The ultimate effect of this act on the part of the government may be to give the honest advertiser a better chance to do something.—ED.]

G. M. DOOLITTLE, page 534, advises that the honey-producer shall breed queens from the right mother, and pay no attention to the drones that meet them, because the crossing will give vigor. Suppose I get a choice queen from Bro. Doolittle, and breed from her; and suppose the young queens have a chance to meet drones only from colonies that last year distinguished themselves as the best honey-gatherers: don't you believe I'll get better results than if those queens meet drones from the poorest honey-gatherers?

I AM SURPRISED to find, p. 532, a Straw about Rietsche wax-presses that is incomplete, not saying at all what I intended to say in full when I wrote. I said it had seemed strange that such presses were used by the thousands in Europe and not at all here. And I intended to say why it no longer appeared strange. You say, Mr. Editor, "I suppose the principal reason is, there is no one on this side of the Atlantic to push it." No, that's not the right answer. It can be given in a few words: In Europe it's difficult to buy pure foundation. In this country it's impossible to buy any other.

I BELIEVE I shall be doing a real favor to any young bee-keeper who wishes to be in the front rank in bee-keeping, and to get out of it all the enjoyment to be had, if I urge him to get "The Honey-bee," by T. W. Cowan, which book has just been revised thoroughly and brought up to date. Even if you have all the excellent text-books on bee-keeping published in this country, you need this little work to teach you the natural history, anatomy and physiology of the little toilers that bring us our bread and butter. You can get it from The A. I. Root Co. for $1.00 [I am proud to possess a copy of this little work. Mr. Cowan is so careful in his statements that I consider him an authority on any scientific subject on which he writes.—ED.]

IF YOU SUCCEED, Mr. Editor, in perfecting that scheme of having a National brand for the honey of National members, p. 536, then it would be a good thing to spend some good money advertising. If it pays to advertise glucose, why not a better thing? [I do not believe the bee-keepers of the country know how much their product is suspected of being impure or manufactured. The general suspicion that has been created by these newspaper canards has resulted in a stagnant market—unusually so at this time of the year—and I can account for it in no other way than that there has been a lot of these manufactured-comb-honey stories afloat. I can scarcely meet a person, one who knows nothing about bee keeping, but honestly believes that comb honey is manufactured. It is high time that something were done to dispel this delusion. The National Bee-keepers' Association would not be interested in putting out manufactured goods; and it seems to me perfectly feasible and proper that the National should put the seal of purity on all the honey put out by its members; then if any one says that such honey is adulterated or manufactured, the National would have a splendid chance to bring a case for heavy damages.—ED.]

A HONEY-PRODUCER, according to Bro Doolittle, p. 534, should breed from a good queen and any thing that happens in the line of drones; but he says a "queen-breeder can not work along the line a honey-producer can;" if he does, his stock will deteriorate. Of course, then, the stock of the honey-producer who follows Bro. Doolittle's advice will deteriorate, and Bro. Doolittle doesn't say what he is to do about it. One way, no doubt, would be for the honey-producer to buy a choice queen each year, and for many that might be an excellent plan. But would it be the best plan to keep the two classes entirely distinct, the honey-producer each year purchasing a queen from a man who produces no honey, but gives his whole attention to rearing queens? How is the queen-breeder to select the best stock if he knows nothing about the honey-gathering quality of his bees from actual observation? He must either be a honey-producer or depend upon the selection of some one who is a honey-producer. First or last it is the honey-producer, even if he be also a queen-breeder, who must be depended upon for selection, and the chance for selecting the best is a good deal better with the man who has a thousand colonies than with the man who has ten. Kind o' looks as if best results might be attained if queen-rearers and honey-producers would work together to select the best and suppress the worst, not only of queens but drones.

E. W. ALEXANDER tells us formaldehyde is all right for black brood but no good for foul brood, page 536 But don't bacteriologists tell us the bacterium of each is the same? [Yes; but the two diseases are so dissimilar that it does not seem possible they can be one and the same. If I am correct, the same bacteriologist who said that the microbe of black brood was *Bacillus alvei*, afterward examined a sample of real foul brood and stated that it was totally different. Mr. Thos. W Cowan examined the foul brood that we had here at Medina, with a microscope, in 1887, and he distinctly recognized the *Bacillus alvei* of Europe. It seems to me probable that this germ may be present in black brood; but that it is the primary cause of it is hard to believe.

Mr. Alexander, of York State, one of the most extensive bee-keepers in the world, has found that black brood can be cured with formaldehyde, but not foul brood. The inspectors of New York have been in the habit of making sharp distinctions between black brood and foul brood, if I am correct. Of course, it would be possible, I suppose, for one germ to manifest itself in different forms; but in this case the two diseases should show more points of similarity. While foul brood and black brood are alike in color and in the appearance of the comb, the character of the dead matter is totally different, as is also the odor. Its manner of spreading is different, because foul brood can be held in check with comparative ease by one who understands how to handle it. But black brood has not always yielded to treatment, although the inspectors, when their directions were followed out carefully, have been fairly successful.—ED.]

PLEASE tell us what is a Titoff cage; also how *Titoff* is pronounced, page 550. [The Titoff cage was illustrated on page 134. While the present cage has been modified slightly, the main principle is there shown. If you want to know about it, read our little book, "Modern Queen-rearing," by G. W. Phillips. By the way, Mr. Titoff was commissioned by the Russian government to go to America to study bee-keeping. He has spent something over a year at our plant, and expects to go west soon to work with some of the extensive honey-producers in order to learn modern American methods. He is a young man of exceptional ability, and a tremendous worker. There is no doubt that he will be a large factor in introducing modern American bee-keeping into Russia. I am not sure but some of the other European countries would do well to follow Russia's example.

The name *Titoff* is pronounced as if the *i* were an *e* — Tee-toff, the accent coming on the first syllable.

There is a bare possibility that he will attend the convention of the National at St. Louis. If so, he will probably be a representative of the Russian government. He is thoroughly posted in modern methods of queen-rearing, having tested them all at our yards, of which he has had entire charge for several months back. He is perfectly competent to go into any yard and rear queens, but now desires to learn the practical side of honey-production.—ED.]

Pickings from Our Neighbors' Fields
By
"Stenog."

The *Gazette Apicole*, a French journal, gives the names of 78 bee-papers; of these 15 are in the English language; 23 are in French; 16 German; Italian, 4; Russian, 9; Dutch, 4; Spanish, 3; Norwegian, 1; Swedish, 1; Bohemian, 1; Roumanian, 1.

⁂

WESTERN BEE-JOURNAL.

Vol. I. No. 1 of this new journal is out, published by P. F. Adelsbach, Hanford, Cal., where the dispute between the pear-growers and bee-men took place. That's just where we need a representative. The new exchange is very good in every way. I quote a few words from it relative to bees and fruit; for although bee-keepers understand the matter very well, others do not, hence we need all the evidence we can get. Mr. G. W. Thrasher, of Gridley, Cal., says that "he had a pear and almond orchard at his home in Butte, and the last few years he had demonstrated beyond a doubt that the bees assist materially in propagating the fruit. 'For years my pear-orchard bore but little,' said Mr. Thrasher, 'and I had about decided to dig up the trees and plant almonds. By chance I put a colony of bees in my orchard, and, to my surprise, from that season to this my pear-trees have borne heavily, the result, undoubtedly, of the work of the bees.' This is but natural. The honey-bee fills the same position to the flowering fruit-trees that the fig-wasp does to that fruit. The Smyrna fig-trees that were planted on the Stanford ranch, at Vina, were barren until the wasp was brought out from Smyrna and introduced in the orchards."

⁂

In speaking of making one's own hives, E. M. Whiting says:

> I sent for a saw-table and a few extras to go with it, costing about $35. I went to the foundry and gave them $ 5 to cast me a horse-power. I made my own shafting, got some cog-wheels from an old mowing-machine, made some wood pulleys, the whole thing, labor and all, costing me about $100. I made all my own hives and a good many for my neighbor bee-keepers. I could cut 11 end-bars for Hoffman frame at one round of the horse.

In that case Mr. Whiting made it pay *as a manufacturer* for others; but would it pay *all* bee-keepers to attempt what he accomplished?

⁂

In speaking of bees and alfalfa M. G. Crowder says:

> Yuma Valley is a very productive country of some 86,000 acres of river-bottom "made" land. The soil is about six feet deep. Our principal crop is alfalfa, which produces seven crops per season, or something like ten tons to the acre.
>
> My two years' experience with bees in this valley is not the best, by reason of the haying industry. Prices of hay run from $10.00 to $12.50 per ton, so the farmers make good use of all the time they have in cutting the alfalfa for hay. Alfalfa is cut every 30 days, so it scarcely has time to bloom. Thus there has really been no fair chance for a good test along the line of honey productions.

⁂

IRISH BEE JOURNAL.

This always interesting journal tells of a Mr. James Mason, aged 47, who was jilted in a love affair 13 years ago in Essex, Eng. Instead of committing suicide he has retired within a fortress of thick hedges and barbed fencing, surrounded by a ditch 10 feet deep and 12 wide. He shuns all human creatures, and devotes all his affection and care to the bees and the flowers which he grows for them.

⁂

There has been considerable death of bees through feeding with sugar barley laid on the tops of the frames. The food(?) melted and smothered the bees.

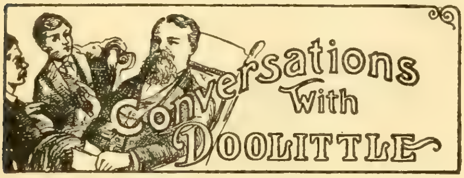
⁂

BRITISH BEE-JOURNAL.

In giving the approximate number of colonies of bees in various countries, the editor says:

> United States, 4,500,000; Germany, 2,000,000; Austria, 1 800,000; Spain, 1,700,000; France, 1,000,000; Great Britain, 500,000; Holland, 250 000; Belgium, 200,000; Denmark, 100,000; Greece, 50,000; Switzerland, 30,000.
>
> If these figures are correct, the United States may well arrogate to herself the proud title of "the greatest bee country in the world" Just fancy a country producing honey which, loaded on cars, would make a train 25 miles long! Austria is undoubtedly one of the leading honey-producing nations, and excels in organization, for she has a Bee-keepers' Association numbering over 8000 members. Their income,

amounting to over £1500 is augmented by a public grant of about £600, and they insure all bee-keepers, irrespective of the number of colonies in their possession, for the small charge of less than 6d., guaranteeing to "make good any losses from foul brood, fire, theft, etc." In no other country on the Continent, however, is agriculture so well organized or so successfully carried on as it is in Germany; and her bee-literature is second to that of no other country, while for scientific knowledge of bee anatomy she stands an easy first.



WORKING FOR COMB AND EXTRACTED HONEY.

"Say, Doolittle; can I work my apiary for both comb and extracted honey at the same time and in the same year?"

"Well, Brown, I see nothing to hinder. Why do you ask such a question?"

"Because Jones told me he would not do it."

"It is not a question of what Jones would do, but one of what *you* want to do, is it not?"

"It looks that way. I have 50 colonies, and I wish to work 25 for comb honey and 25 for extracted. I use combs 5½ inches deep in the extracting-supers, and the 4×5 sections for comb honey. My principal trouble is swarming during the honey-flows, thus interrupting work in the supers. Please tell me how you would work in both cases, and I shall be very grateful to you."

"In the first place, I should not expect to allow many (if any) swarms by natural swarming, from the colonies worked for extracted honey; for I believe more extracted honey can be obtained where the colonies have no desire to swarm than can be by any plan which inclines the bees to swarm."

"I am quite in accord with that; but how can I hinder their swarming?"

"Mr. Quinby told us how, years ago, when he said that, if a colony were given from 5000 to 6000 cubic inches for a hive, and this space was filled with comb, such a colony would not be likely to swarm; and in all of my operations with bees I have found Quinby to be very nearly correct on this point, and especially so if the honey is extracted from the combs not occupied with brood, as soon as the most of it is sealed over."

"Then why should I be bothered with swarming?"

"My idea of this matter would be that it is because you are using those 5½-inch combs in your supers. Why do you wish to use combs for extracting-purposes of that depth?"

"Because I got started that way from a colony or two that I bought from a man who worked for extracted honey."

"I have never been able to see any particular reason for using combs of any other than the same depth as the brood-frames used in the lower hive, for extracting purposes."

"But some use such, do they not?"

"Yes, I know that a few of our advanced bee-keepers do use combs in the extracting-super, of a different size from those in the brood-chamber; but what few reasons have been given for such a course have seemed illogical when viewed from my standpoint. Have you any frame full of comb not in use, like those the bees are on?"

"Yes."

"How many?"

"Probably enough to fill twenty hives."

"Then as you have asked me to tell you how to work those bees, I judge I'd better tell you just how I would do it, and I would use those extra combs on twenty of the colonies I worked for extracted honey; and then if those colonies needed more room I would put the 5½-inch combs on top, working for full depth combs till I had enough such combs to supply all their needs. When this was effected, the 5½ combs would be rendered into wax. Colonies fixed with full-depth combs as above, where the honey is extracted from them as soon as ripe, will not swarm, according to my experience; and, in my opinion, if you work this way you will secure the best possible results from the colonies so worked."

"This is something altogether different from what I had planned or ever worked before."

"If you have any doubts I can tell you how you (or any one else) can prove whether Doolittle (or any one who tells you of something new to you), is right or wrong, when his teachings are applied to your locality."

"How is that?"

"Just try the plan advocated on a *part* of your colonies, using your former plans with the rest, and this will prove the matter to your entire satisfaction. If the *new* plan proves good, then prepare to work the whole number you wish to work for extracted honey that way. If it proves not so good as the plan or plans you have been using, then drop it, adhering to your old plans till you strike on something better. By doing in this way you may go a little slower, but you will be sure you are right for *your* locality."

"Thank you. That is fair, I am sure. But what about working for comb honey?"

"In working for comb honey the bees must build their combs, or draw out foundation in the sections, at the best, and this places the bee-keeper where he will most certainly have more or less swarms, unless he hinders such by some profitable manipulation."

"What do you do along this line of manipulation?"

"Do you wish any increase?"

"I would rather have some increase, as I have not yet all the bees I wish."

"The shook plan which I gave in a late number of Gleanings was one having as its object the doing away with all increase; but I have another plan which allows of a half increase, or one that gives one new colony from two full colonies at swarming-time, with no desire to swarm thereafter."

"That is just what I should like, as it would give me about the number of colonies I should like in the fall."

"Take a hive having seven of those empty combs you have on hand, and place it upon the stand of any populous colony which you have reason to think may swarm in a few days. Now select a frame from the brood-chamber which is nearly filled with honey, but having a very little brood in it, and set this comb (bees and all) in the center of the hive, thus making eight frames. Now set the sections, which were on the removed hive, on the new hive now on the old stand, and shake and brush *all* the bees off their combs down in front of the prepared hive, into which they will run as fast as shaken. Get the bees all out of the hive also, when you will put the frames of brood now beeless, back in the hive and set it down near another populous colony. Now take one of the combs of brood and carry it to one of your nuclei, which you have previously prepared, so you would have queens to use when you wished them, and exchange it for a comb of brood from the nucleus, having the queen and all the bees that may happen to be on it, taking this latter and placing it, queen, bees, and all, in the hive standing by the populous colony. Now fill out the hive with empty combs till the full number are in; and as soon as the hive is as you desire it to be for the next two days, set the populous colony to one side a little, and put this prepared hive in its place, and, later, remove this set-off colony to a new stand where you wish it to stay for the rest of the season. A day or two later, take the sections from the removed colony and place them on the hive having the frame from the nucleus in it; and in about a week put sections on the removed colony again. In this way you have on the stand of the first populous colony all of its bees and one frame from the old hive with a little brood to hold the bees in a contented condition, the queen in a prolific state, ready to take advantage of the empty combs you have given, and the sections they had commenced work on, all ready for their use, and all in condition for a large yield of honey, with no desire to swarm. Next you have nearly all the brood from the first colony, a young prolific queen and her attendant bees from the nucleus, together with all the field-bees and sections from the removed colony on the stand of the same, and that in a condition to carry forward the work already begun in the sections, and with swarming all done with for the season; while the removed colony is in perfect condition, lest the field-bees which have been drawn off by its removal, in just the right time to stop all idea of swarming for the season. And this colony will also be ready to go to work in the sections that are to be put on in a week or so after the manipulation. All three are in the best possible condition to take advantage of the honey harvest, which will be at its commencement now, if you have timed your labor so as to have all done about three to eight days before your expected honey-flow."

"Well, now, that is worth knowing. How long have you used this plan?"

"For over 25 years, and it has always proved successful."

Bee-Keeping among the Rockies
By H. C. MOREHOUSE
BOULDER, COLO.

INTRODUCTORY.

In assuming the management of this department, I wish to solicit earnestly the personal co-operation of every reader of GLEANINGS residing in the western half of the United States, and more especially in those portions where arid and semi arid conditions prevail. I wish to receive correspondence relative to all matters of interest to bee-keepers. This should embrace wintering reports, crop reports, prices, and, in fact, any information regarding the condition and welfare of the industry. These will be carefully digested, and presented in condensed form. If the western patrons of GLEANINGS will take hold with vim and enthusiasm, they can make this department, which has been instituted for their benefit, of great value to themselves—a sort of intelligence bureau, through which they may keep in touch with each other.

The beginner class may send me their questions or a statement of their troubles, and I will assist them to the best of my knowledge.

About July 1 I should like to begin receiving crop reports. I shall pay especial attention to crop matters, and I want my deductions to be as reliable as possible.

* * *

Bees began swarming May 20—too early for best results in Colorado. Better hold them back by judicious equalizing until a few days before the opening of the flow.

* * *

The bee-inspector of Fremont Co., Colorado, reports 75 per cent of the bees "rotten with foul brood." In 1902 this county was credited with 2000 colonies. By the way, I am informed that some good locations for apiaries are still open in that county.

* * *

In my opinion, the development of the "shook-swarm" system is the most important advance in apiculture in the past twenty-five years. It not only gives practical control of swarming, but colonies may be made as strong as desired, with little probability of swarming.

* * *

This is the season when foul brood flourishes like a "get-rich-quick" joint. Likewise, it is the time when it can be extinguished with the least damage to the apiary. Prevention is easier and better than cure—keep a sharp lookout for it, and handle it promptly when found.

* * *

"What wages are paid to assistant apiarists in Colorado?"—is the substance of an inquiry from an eastern correspondent. I reply here, as, no doubt, many others are interested. Twenty to thirty dollars per month and board, dependent upon age, experience, and general qualifications.

* * *

Shook-swarms, to be successful, should simulate natural swarming as nearly as possible. In this relation it is of the utmost importance that the bees be caused to fill themselves with honey just before shaking. Neglect of this is a fruitful cause of the absconding of such swarms. A swarm literally gorged with honey will usually stay where it is put, and go right to work.

* * *

Lots of bee-keepers throughout the West are realizing this season the truth of that old, old proverb, "In time of peace prepare for war." The scramble for supplies is simply tremendous. Hives can hardly be had; bees are swarming, and the honey-flow is right at hand. It is the old story. I congratulate Morehouse every time I think of the 300 hives and 50,000 sections I have ready for the fray.

* * *

PEAR-GROWERS AND THE BEES.

Recently the pear-growers of Paonia, Delta Co., Col., bought up all the bees within flying distance of their orchards (some 400 colonies), and sold them at auction, the condition being that they be removed from that neighborhood. This action was taken on the supposition, supposedly proven, that the bees were instrumental in spreading the blight. This is not only a unique but a very sensible way to get rid of the bees, *but*—I very much doubt the efficacy of the remedy. The blight will continue to spread, as other insects are more guilty than the bees. It is not unlikely that the loss in quantity and quality of the fruit, due to non-fertilization of the blossoms, will be greater than from the blight incidentally spread by the bees, and I should not be surprised to see our little friends returned in triumph to "where rolls" the Gunnison.

* * *

CHEAP INCREASE.

One of the problems in many parts of our country this season is the replenishment of winter losses. This can be done rapidly and cheaply by the nucleus method, and its simplicity commends it to those not highly skilled in apicultural manipulations. Take a frame of hatching brood, well covered with bees, a laying queen, or a ripe cell, and place them in the center of a hive of drawn combs. A frame of honey or sugar syrup should also be included. The earlier after the weather becomes warm and settled these nuclei can be formed, the better, though in Colorado they will succeed if started as late as the first of July, without feeding. It requires from six to seven weeks to develop them into full colonies, and they will be in prime condition to gather surplus honey from the fall flow. Fifteen or twenty good colonies may be easily increased to a hundred in this manner; and, if the season is fairly good, they will more than return their cost. They make the very best colonies for the succeeding year, as the queens are young and will be at their best. I made nearly one hundred such nuclei between June first and July first, last year. With the exception of one, all wintered, and to-day they are among my best colonies.

* * *

THE CROP PROSPECT.

The outlook for a crop of honey throughout the irrigated regions is generally good, excepting in Arizona and New Mexico, where the almost total absence of snowfall and spring rains has practically blighted all chances for a crop of surplus honey this season. In Colorado the winter loss amounted to about ten per cent, due very largely to queenlessness. The spring has been fairly favorable, and the colonies are in prime condition for the flow, which promises to open about June 15. Mosture conditions are highly satisfactory, the government station in Denver reporting a more than normal amount of precipitation since January 1. The only apparent drawback is, in some localities the alfalfa is badly winter-killed—not by cold weather, but by warm dry winds. Sweet clover is doing well, and in most localities is more than usually abundant. Conditions in Utah and Idaho are even better; the winter losses were trivial, and the few reports I have had indicate that the crop will be fully up to the average.

Viewing the situation as a whole, with the exceptions noted above, the outlook is very bright, and honey-buyers will not be disappointed if they depend upon shipments from the arid States for their supply of this toothsome sweetness.

I also believe that our bee-keepers will receive a fair price for their product, which, if the flow is good, and care is taken, will grade high. Considerable of last year's crop is still in the hands of dealers, but I note that it is nearly all "off grade," and will by no means compete with the new crop. In Colorado we export only the two grades, No. 1 and No. 2, and in the East they usually pass as fancy and No. 1. The "off grades" are either extracted or sold at home at a lower price.

Editorial
By E. R. Root.

THERE is an abundance of clover out, both red and white. The first few days of June were very warm; but it has now (the 10th) turned so cool that no bees can do any work in the field. We are daily hoping it will soon warm up.

ALL the supply manufacturers in the country, apparently, are having a big business in spite of the heavy winter losses. Some of them are making enlargements, just as we are. The great mortality throughout the lake region makes it hard to understand why there should be such a heavy trade.

BRICK HONEY FOR SUMMER TRADE; CUTTING UP A SOLID CHUNK FROM A SQUARE CAN WITH AN ORDINARY BUTTER-CUTTER, SUCH AS IS USED BY WHOLESARE BUTTER-DEALERS; A BIG FUTURE FOR BRICK HONEY.

LEARNING that butter in large chunks is cut up into bricks and rolls with a special machine having taut wires evenly spaced on a metal frame, we sent and got a regular butter cutter, and have been testing it this summer to supply our trade for brick honey. It is away ahead of the single-wire method of cutting as illustrated in GLEANINGS, both in quantity and quality of the work. The bricks can be gauged to a mathematical size; and, instead of cutting one brick at a time, four or five wires are forced through the mass almost as quickly as one wire. In the process of cutting, the wires sink slowly under the pressure through the chunk. If too great a pressure is exerted the wires are liable to break so that it is best to "make haste slowly." It would be a great scheme to use one of these butter-cutters in a grocery window on a big day. The public would wonder what you were cutting. Of course, possible buyers would ask dozens of questions, and that is just what you want. If you have on hand some samples about an inch square, wrapped in paraffine, and give them away on one day, the probabilities are you can get rid of all your old extracted honey in an incredibly short time.

I tell you, friends, there is bound to be a future for brick and bag honey. I would not call it "candied," but simply "brick" honey, and explain to your customers that, during cold weather, this is the natural state of all first-quality honey, for poor stuff would not solidify into bricks for retail purposes. It is simply a question of educating your own local trade, and selling honey right around home, for you can not sell it outside until the public has learned to know what brick honey is.

FROM THE FRYING-PAN INTO THE FIRE; A CORRECTION CORRECTED.

A SHORT time ago a reporter for the Cleveland *Plain Dealer* visited our establishment, took a number of photos, and notes for an article. These have now been elaborated into an article, the same appearing in the Cleveland *Plain Dealer* for Sunday, June 12, and presumably it has appeared in Sunday editions of other papers. We explained at the time to the reporter the lies that are afloat about manufactured comb honey, and desired her (for she was a lady) to be kind enough to correct the wrong impression conveyed. To this she readily assented; but, unfortunately, and evidently with the best of intentions to refute the canard, she has made the matter worse, if any thing. The following paragraphs are somewhat misleading, to say the least. In speaking of the foundation and different processes of its manufacture, she says:

> It goes to another machine, where it is made thinner and finer, and from there to another, where it is honey-combed and cut into appropriate lengths. This honey-comb is put into the hives to serve the bees merely as a foundation for their labors. It is distinctly a labor-saving device that men have adopted to get more of the honey itself out of the little laborers among the flowers. . . .
>
> A trip through the place is very interesting. They start you at the room where the honey-combs are made—the honey-combs, mind you, not the honey. The company has a standing offer of $1000 for the man or woman clever enough to invent a way to make artificial honey, "paraffine and glucose," which is the imaginary formula sometimes given by carping critics.

The only danger is that some reporter or newspaper writer may read this article carelessly, gather a wrong impression, and conclude that honey-comb is made at our plant, when in fact we make comb foundation, such as all bee-keepers are familiar with, the cell-walls of which are not deeper than a sixteenth of an inch. The general public is liable to jump at the conclusion that we, The A. I. Root Co., are making bogus artificial combs.

We have written to the publisher, and hope to have a correction.

A WESTERN DEPARTMENT AND A WESTERN EDITOR.

I AM pleased to inform our readers that we have engaged Mr. H. C. Morehouse, of Boulder, Col., to conduct (for a time at least) a "Western department" in GLEANINGS, entitled "BEE-KEEPING AMONG THE ROCKIES." The first installment is begun in this issue, and for the present will appear once a month. Mr. Morehouse is an old newspaper man, and formerly editor of the *Rocky Mountain Bee-keeper*—a journal that showed most excellent editorial ability—so excellent that, when I heard Mr. M. had sold out his paper, I immediately entered into correspondence with him with a view to getting him to edit a department in this journal. While he sold out because he had not time to get up a whole journal, I finally prevailed on him to edit (at least for a time) one department in GLEANINGS. As he is one of the officers of the Colorado State Bee-keepers' Association, and is in close touch with all its workings, he will be in position to give valuable information relating to Western apicultural topics, particularly Colorado, where the conditions are so radically different from what they are here in the East, or that portion of the country known as the rain-belt—broadly speaking, east of the Mississippi. Mr. Morehouse has connections whereby he can reach all sections of his State and other portions of the great West, so that he will be enabled to give some idea of the quantity of the output and possible ruling prices. As he is an extensive and practical bee-keeper of over a thousand colonies, our readers can rest assured he will be able to furnish us something practical and useful. It will repay our Eastern readers to keep track of this department, for Western honey has come to be a big factor in the Eastern markets, and it is bound to be a still bigger factor in the future, because that portion of the country west of the Mississippi will undoubtedly in time produce the very much larger part of all the honey in the United States, if it does not already. Millions of acres are now being opened up to alfalfa, and this means alfalfa honey, which has now come to be recognized as a table honey of the first quality. California mountain sages will never be less abundant, because they grow where farm crops can not live. While some of the Eastern trade prefer clover or basswood, the time will come when they will recognize alfalfa and sage as equal to the best.

H. C. MOREHOUSE.

Because of the importance of the great West, GLEANINGS has been considering for some time the need of getting a bee-keeper and an old newspaper man who is in position to keep in touch with conditions as they exist in the irrigated regions. In the realization of these hopes we feel that we are fortunate in securing the services of so capable a man, from all points of view, as our friend and editorial writer Mr. H. C. Morehouse. Just how long his time will permit him to serve us, remains to be seen; but we hope to hold him on our editorial staff for a time at least. Possibly later on he may be able to find time to prepare matter for every issue.

While we have a regular Western department, it must not be understood that the articles of some of our Western writers will be any less welcome than before.

BRICK AND BAG HONEY IN WARM WEATHER.

I FIND that, in warm weather, our brick honey wrapped in paraffine paper becomes soft, or is a little harder than butter that spreads nicely on bread; but it has not so far softened enough to make it run out of the paper. On very warm days the bricks will be quite soft, but can still be handled readily for retail purposes. Just as soon as the weather cools off, however, the honey hardens again, in much the same way that butter does. Last summer I was a little fearful that this bag honey would not be suitable for retailing in mid-summer, because one sample we had became so soft it began to leak. But we have a much larger amount of it on hand now, and I am pleased to report it is holding its shape very well. I would still, however, advise caution, and, so far as possible, get the trade to sell all candied honey before the approach of genuine hot sultry weather. That this candied honey is going to have a certain and positive demand as soon as the public is educated to it is very evident. Our employees continually call for it. We have some square cans of candied honey; and as fast as we use up our bricks we peel the tin off from one chunk, slice it up, wrap it in pape , and lay it out where the employees can see it. They seem to like it better than the liquid or even comb honey. One reason, I suppose, is that candied honey is a little richer in flavor, without the strong minty taste of the same honey in a liquid condition. One of our correspondents, Mr. J. S. Callbreath, calls our attention to this fact—one that I have often observed.

GREINER'S ARTICLE IN THIS ISSUE.

I WOULD call attention to a valuable communication from Mr. Greiner, in this issue.

The reader is requested to read especially that paragraph regarding the scraping of sections on coarse-mesh wire cloth. The experiment can be very easily tried; and if it works successfully it is a big thing.

There are some other good things in Mr. Greiner's article, and the reader should not fail to go over it carefully.

By the way, the Ontario Co. Bee keepers' Association, in New York, is a very lively organization. It is made up of some of the most progressive bee-keepers in the country. Their discussions would do credit to any of the best National conventions we have.

FRED W. MUTH AND FAMILY.

When I attended the Hamilton County bee-keepers' convention at Cincinnati, last winter, I had the pleasure of meeting quite a number of bee-keepers and their better halves. Among the latter was Mrs. Fred W. Muth. She said something to the effect that she was making a collection of bee-keepers' photos, and would I favor her with my picture, or, still better, one of the family group of me and mine? To this I readily consented, but stated that as yet we had no family group picture but that I would have one taken, provided, however, Mrs. Muth would favor me with a picture of *her* family. "Agreed!" she said. Mrs. Muth has already performed her part of the contract, and I take pleasure in presenting a picture of which any mother or father might well be proud. Accompanying the photo Mrs. Muth sent a brief letter, which I am pleased to present to our readers.

> *Mr. Root:*—I have three children to take care of. I am my own *biddy* and dressmaker, and do all my work from A to Z; indeed, I am kept very busy. Martha, age 11, at my right, is a great help at home, and can sew, and trim her doll's hats well; while Edna, age 9, at my left, claims she is going to be the schoolteacher.
>
> Clifford, our sunshine, as his papa calls him, says he is going to be papa's honey-man, and, above all, I tell everybody I have the "sweetest" man in town—of course, a honey-man; why shouldn't he be sweet?
>
> Cincinnati, O. MRS. FREDA MUTH.

Mr. Muth himself is the "son of his father," the late Charles F. Muth, and, like his father, he is a very *sweet* man. He may be the "sweetest man;" but if I were to father the statement there would be some other "better halves" who would take issue with me. After all, if all wives felt this way there wouldn't need to be any talk about the looseness of our divorce laws.

Mr. Muth is agent for the Lewis Co.'s goods, and does quite a large business in buying and selling honey. While he is a direct competitor of the Root Co., we wish him success, and at the same time offer him congratulations upon the possession of so happy and bright-looking a family.

In a later issue we hope to present soon two more Cincinnati honey-men, for, be it known, Cincinnati is quite a sweet city.

FRED W. MUTH AND FAMILY.

GENERAL
CORRESPONDENCE.

MAKING ONE'S OWN HIVES.

A True Story With a Good Moral to it.

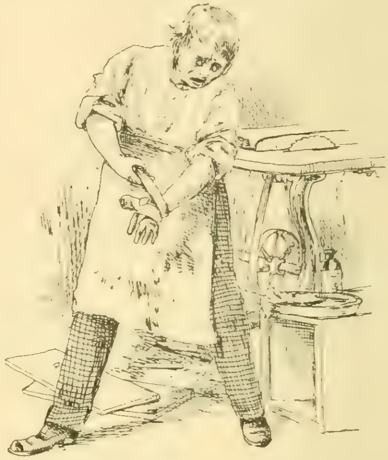
BY FRANK M'GLADE.

I have been reading several articles on the subject of cheaper hives, which have been intensely interesting to me, especially when I remember the first few years of my experience in bee keeping. I bought a saw outfit with power, and was going to make my own hives and a few for the neighbors; but when I came to put them into use they would not fit, and caused me much bother. I gave the whole thing up, and have been using factory hives and all things pertaining thereto since, and shall continue to do so as long as I keep bees; so, in view of my experience as seen through 25 years, I say, "Lord, pity the man who buys a buzz-saw."

Of course, it *can* be made to work if you buy expensive machinery and pay enough for it; but the money thus spent would buy all the hives an ordinary bee-keeper would need in a life time.

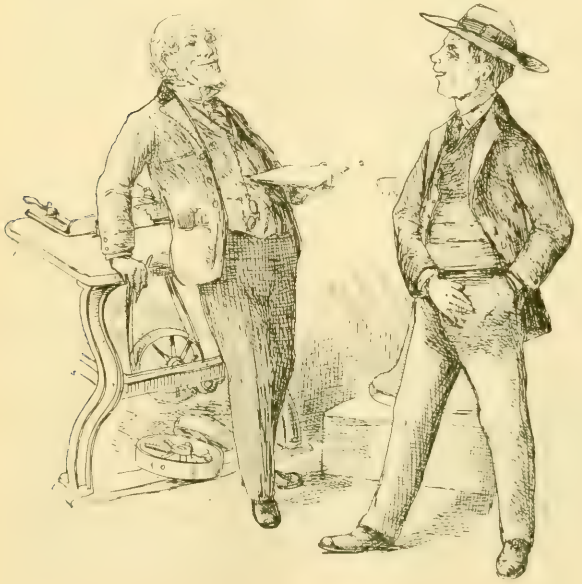
A buzz saw is a harmless-looking thing; but it has a habit of going in such a "wobbly" way, to say nothing of its love for a thumb or finger, that I am very much inclined to let it alone.

Why, the pleasure I derive from putting together a bunch of factory hives more than pays me for the extra cost that I would save if *I* made them, to say nothing about the benefit to my temper to work at it all day in the spring. Sun shining warm, fish biting, bees humming in the trees, is like a poem.



"LORD, PITY THE MAN WHO BUYS A BUZZ-SAW."

When I think of the fits I used to have, and look at the fits in a lot of factory hives, I am more than ever confirmed in the eternal fitness of all things, especially those made by The A. I. Root Co. So my advice is, "Don't buy a buzz-saw; but if you think you must make your own hives, buy a 24-in. No. 12 skew-back Fulton hand-saw, a jack-plane, and a square. You can get pine boxes at the store for 5 cents each, on which you can practice, and it will not cost so much.



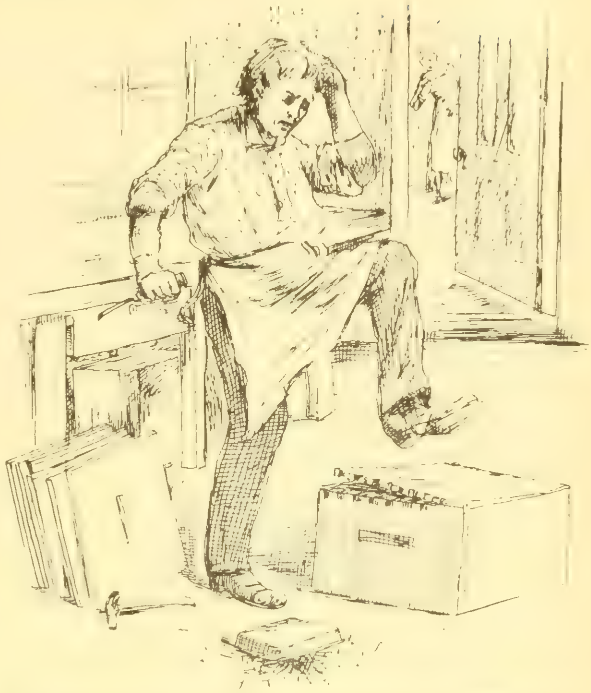
"I AM GOING TO MAKE MY OWN HIVES AND MY NEIGHBORS'—SEE?"

I winter my bees on their summer stands. I buy coffee-boxes at the stores for 10 cents each; take off the top and bottom; saw off 3 inches of the edge of one end and nail it inside. I set this case over the hive, which is about three or four inches larger than the hive. This I pack with clover chaff; take off supers; put over the frames a piece of rag carpet, and fill up with chaff for covers. I get steel roofing in rolls; cut pieces 36 in. long; snip corners, and fold down. These cost 20 cts. each; pack them thus, and let them go. Since doing this way I have not lost a colony. This last winter they were confined from Nov. 1 until Jan. 22, about 85 days continuously, with all entrances open full width, and they all came through finely.

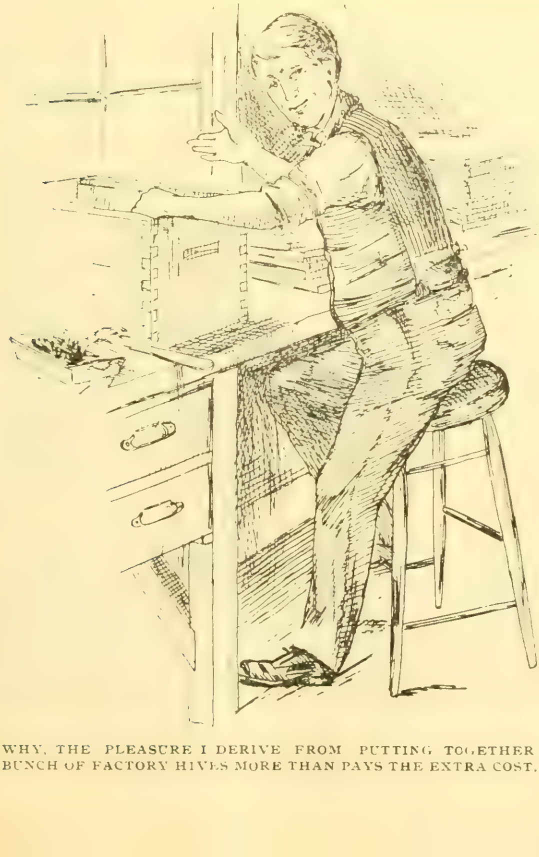
I have tried chaff cushions in supers, and have always had trouble with them, on account of their getting wet, and rotting and tearing. Now I use rag carpet. If you leave supers on, try a few packed with old rag carpets. I think you will be pleased with the results. Better say something to the women about it, before you take it, as they might not like it. Mine didn't.

HIVES MADE AT THE PLANING-MILL; ARE THEY ANY BETTER?

Several years ago I built up an apiary near Springfield, and decided to patronize a planing-mill for the hives. Surely, where they had ample power the saw would run right, and then I could pick out the lumber to suit myself; but I found, when I came to select the kind it seemed I wanted, the lumber was too dear, and I was compelled to take a cheaper grade. Well. I did the best I could. The man looked at his watch, pushed the lever, and away went that saw, and it looked as if all would be plain sailing; but before I got through I saw my mistake, and heartily wished myself out of it. In the first place, the man knew nothing of what I wanted. He was competent enough to handle the machines and get out an order for panel doors, or sash and blinds; but a hive was out of his line, and I had to tell him as we went along; and I tell you, for a greeny to go in there and try to measure and figure and count with that old saw running at the rate of $1.00 an hour soon gets one rattled, or it did me. Well, after it was all over it looked as if I must have selected lumber with strings in it, for the ends looked like the frayed end of a piece of rag carpet, and were beautifully corrugated; and when I put them up I felt all the time that I ought to have iron rods to hold them together.



"THE FITS I USED TO HAVE, AND "THE ETERNAL FITNESS OF ALL THINGS."



"WHY, THE PLEASURE I DERIVE FROM PUTTING TOGETHER A BUNCH OF FACTORY HIVES MORE THAN PAYS THE EXTRA COST."

I want a hive specialist to make my hives, and don't want any better than the kind they make at Medina.

Pataskala, O.

[It is not impossible to get "bad fits" on factory hives if the dovetailing should happen to be done when the lumber is not quite dry. It is *then* that the manufacturer gets "particular fits."—Ed.]

TOP-BARS THICK, MEDIUM, AND THIN.

Their Relations to Brace-combs; Nomenclature.

BY S. T. PETTIT.

While perusing the bee-papers I notice that some writers use the terms "brace-combs" and "burr-combs" indiscriminately. Indeed, I opine that the average bee-keeper has no very well defined discriminations between the two kinds. It is well to have all names and terms well defined.

Recently I have been looking over the glossary of the A B C book for your definitions of brace-combs and burr-combs; and now I am of the opinion that, like almost all human first efforts, they may with profit be revised. A good many bee-keepers can not subscribe to them as they are; so, in order that we may perfectly understand each other, and be understood by others, I will in this article ignore the terms referred to and use, instead, the term "wax," always mentioning just where the bothersome "wax" is. I am sure I can make myself better understood by so doing. I take this liberty because our authority, Dr. Miller, has set or made a precedent, p. 791, 1903. I am aiming at preventing the deposit of wax where we do not want it, regardless of names just now, by the use of a proper top-bar.

I believe there is no part of the interior construction of a hive that performs a more important function than the top-bar, standing as it does right in the road to the supers; and that its improper make-up will cause more mischief than the improper construction of any other interior part of the hive, except that of the queen-bar, or excluder. Indeed, I am not sure that even the queen-bar should be excepted. Then the very best possible should be the aim. But among the great variety in use, the question is, "Which is the best?" or has it yet been born? The answers on page 132, *American Bee Journal*, to the questions, "Would you use a frame with thick top-bars? If so, why? If not, why?" afford quite a study, and give some information. First, we learn that those who answer in the affirmative do not all mean the same thing; nor do those who answer in the negative. Mr. P. H. Elwood says, "Yes, a half-inch." Rev. M. Mahin says, "I would not. I have always used a top-bar only ½ inch thick." One calls ½ inch thick, and the other regards it as thin. If the question had been specific enough to ask, "What thickness do you prefer?" likely the desired information would have been given. My purpose in this paper is to throw some needed light if I can. Of those who give definite figures, only three use so much depth as ¾ inch, while ten use ⅝ and under.

It seems pretty clear that Mrs. J. M. Null voices the views of a large majority of

AN OUT-APIARY OF 95 COLONIES IN AUSTRALIA. SEE PAGE 604.

those who answer when she says: "I prefer to have the top-bars of just sufficient thickness to secure the strength needed. I prefer honey in the brood-nest or super to wood."

I am not a little disappointed that only two make any specific mention of wax *between* top-bars. They are what gives the most trouble. A few strikes with a suitable hoe will clean the tops of the top-bars in short order. But it is, indeed, a very different job to get the wax from between top-bars.

Mr. G. W. Demaree says, "A too thick top-bar is a waste of room, and invites the bees to increase the nuisance known as burr-combs between the top bars."

Being a believer in thin top-bars, and knowing as I do that there will be less wax between thin than thick ones, I here give a selection of what some others say that supports my claim.

At the last meeting of the O. B. K. A. Mr. J. B. Hall said, while discussing the best means of keeping combs in place while moving bees, that he had no trouble; there were burr-combs enough for that, or words to that effect. I am much obliged to Mr. Hall for that candid admission, as it removes some misunderstandings. Mr. Hall uses a ⅞-inch top-bar.

Mr. Coggshall says, "It is not necessary to have ⅞-inch top-bars. The width is what prevents burr-combs in New York— GLEANINGS, page 485."

Dr. Miller uses a ⅞ top-bar, so I repeat what he once said when speaking to Ed. Root: "I attach more importance to J. M. Mack's tool than you, for I can hardly agree that the accumulation of wax and propolis between top bars does no particular harm. It means a good many bees killed if you don't go slow, and in time the accumulations become such that the spacing is greater."—GLEANINGS, p. 791, 1903. And more: If any one will take time to look through Dr. Miller's excellent new book, "Forty Years among the Bees," and take a look along the sides of the eight or ten frames therein shown, he will be pretty well convinced that the deep spaces between ⅞-inch-thick top-bars are irresistible temptations to the bees to occupy them with wax. A thinner top-bar, and the consequently shorter space, alleviates that temptation just in proportion to the shorter or shallower perpendicular spaces. May I ask the reader to dwell a little upon this statement?

Let us endeavor to get at the truth of what is the best thickness of top-bars for all Canada and all the United States except those localities where climatic conditions and quality of timber may possibly require a top-bar somewhat different from ours in construction. The arguments I presume that weigh the most with the seeker of truth are, carefully conducted and exhaustive experiments, and attentive and varied observations.

To make myself better understood, I am sending you a photo of sections of top bars, the sides of which are of unequal thicknesses. By placing frames with such top-bars in hives as shown in the figures above you have virtually thin and thick top bars alternated through the hive; that is, two thin sides together, a fair representation of thin top-bars; then two thick sides together, which represent thick top bars (of course, about ¼ to $\frac{5}{16}$ inch bee-spaces between the bars). In one figure the sides are respectively ⅜ and ⅞, and in the other ⅝ and ⅞. The width is $1\frac{1}{16}$ inch.

Nearly a quarter of a century ago I made quite a large number of frames with such top-bars, and tested them in the brood-chamber, and, later, in the extracting-supers. Some of them are still in use in the supers, and during all these years I have seen more wax between the thick sides than between thin sides. For many years no care has been taken to place them as shown in the figures; but they happen so once in a while. In the mean time I used black, Italian, Cyprian, and Carniolan bees and their crosses; and in *every instance* coming under my observation there was no departure from the universal rule — the thicker the top-bars, the more wax between them; and, *vice versa*, the thinner the top-bars, the less wax between them, all other things being equal. I took both comb and extracted honey over such top bars for years. And, further, I took comb honey for years over top-bars ranging in thickness from ⅜ to one inch, and the showing was always the same.

PETTIT'S SUGGESTION FOR TOP-BARS.

It will be gratifying to me if others will experiment and observe carefully. I had no axes to grind, but I desired to abate the wax nuisance. The ⅝ top-bar properly spaced gives good results in that regard, but I would chose a thinner one if practicable. Mr. Editor, by your indulgence, in my next I will point out other advantages of thin top-bars. Now that forced swarming is so largely coming into use, it is of much importance that the wax bother between top bars be abated.

Aylmer (West), Ont., Can.

[It would be difficult to make a glossary that would have terms that would suit every one. After all, nomenclature is a good deal a matter of custom and general usage. You can't change a name that is accepted. The word "burr-combs" means those that are built *on top* of the top-bars. *Brace-combs* are those that are built *between* them — bracelike — hence the name. I can not see for the life of me why "brace combs" is not an exact and appropriate name.

You have given some good arguments in favor of a medium thick top-bar. We had just that kind of bar some three or four years ago; but in response to requests we increased the thickness to ⅞; but for all that, I am inclined to think it would have been better if we had stuck to the old thickness — ⅝. You have probably made this one question a little more of a study than the average person — the relation of brace-combs, combs between top-bars — to the thickness of the same. Possibly we may yet adopt a thinner bar.—Ed.]

ONTARIO CO. BEE-KEEPERS' CONVENTION.

Reminiscences and Comments; a Good Article.

BY F. GREINER.

When, upward of 50 years ago, a few bee-keepers of Germany conceived the idea of holding annual conventions, and sent out invitations to the other bee keepers of their acquaintance, one of them replied that he did not see any necessity for attending such gatherings, as he knew all there was to be found out about bees. When we now look back and see what has been found out about this little insect, we almost feel sorry for a man who could have any such idea of his own knowledge. We to-day may know a great deal more than this man did; but we are still far from knowing all, and it will certainly pay us to be on the watch and get what information we can wherever we can. Bee keepers' meetings are now not only social gatherings, although even as such they are valuable, but they help to disseminate knowledge; they help us, encourage us, they return us every cent they cost us, and much more. It is a great pity that so many, who might, do not avail themselves of the opportunities they offer. In many localities, for instance, the bee-keepers are very much stirred up about foul brood. Undoubtedly they have reason to be. Would it not be wise in *us* "who do not know foul brood," to post ourselves, to find out all about it, particularly if this knowledge is brought almost right to our doors?

IS IT SAFE TO USE FOUNDATION MADE FROM WAX OF FOUL-BROODY COMBS ?

One of the topics on the program of the Ontario County Bee-keepers' meeting in Canandaigua, Jan. 6 and 7, was foul brood, although the dread disease had never made its appearance in this part of the State. The man to handle the subject was no other than Mr. N. E. France — a man who has had a very extended and varied experience with the disease, and one who could be relied upon. I confess I came away from our convention feeling a great deal easier, and much better prepared to cope with the disease should it appear in my yards, although I have studied and read for 25 years all about foul brood I could find. Let us review a few of the things Mr. France told about.

1. The so called McEvoy treatment, if followed to the letter, has cured every case of foul brood Mr. France has ever met.

What is the cost of treatment? That is a grave question. Mr. F. answers it in this way: He found an apiary of 200 colonies badly infected or diseased. All colonies had to be treated. The obtained combs were melted up and made into wax. All hands, the good woman of the owner included, worked all night rendering the combs into wax and filling the boiled frames with the foundation made from it on a given foundation-press. The next day the colonies could be placed on the foundation-filled frames; the hives were also boiled, and so was the honey, which latter was heated to a temperature not over 210 degrees, and fed back to the bees as quickly as possible. Not counting the rendering of the combs, the whole operation of making the change from hives full of foul brood to clean hives filled with clean sheets of comb foundation amounted to just 16 cents per hive, and the colonies were left in most excellent condition to take hold of the honey-flow. Just think! a whole apiary of 200 hives, full of crooked imperfect combs, drone combs, etc., changed to combs as perfect as can be, all for 16 cents per hive! I feel inclined to give my bees a like treatment just for the sake of the perfect combs to be obtained thereby. In the case related, nothing was lost except some unhatched brood. Every thing else was returned to the bees — hives, frames, wax, honey, within 24 hours.

The owner of another apiary could write to Mr. France some time after the bees were treated by the McEvoy plan: "The occurrence of foul brood in my yard has been a benefit to me. The colonies which had been treated for foul brood have given me more surplus honey than the healthy colonies not so treated."

The rendering of foul-broody combs into wax, and using the obtained wax for foundation, produces no bad effect, so says Mr. F. To test this matter thoroughly he had obtained quite a quantity of badly diseased combs from different bee-yards. They were made into wax under moderate heat. Finally the wax was made into foundation by one of the regular foundation-manufacturers, Mr. France standing watch with a thermometer, so that an overheating of the wax should not take place. When his little batch of foundation was done he took it and used it in 60 hives in several different yards where foul brood had never visited, so far as could be ascertained. Three years have now gone by, but no disease has as yet made its appearance.

Another confirmation that wax of foul-broody combs can be safely used for foundation was brought to notice by Mr. W. Z. Hutchinson, saying that Mr. R. L. Taylor had made wax from diseased combs by solar heat alone, made it into foundation, and used it in clean hives. No disease had come from it.

It seems from all this that foul brood is not so contagious as I was led to believe.

PICKLED BROOD; HOW CAUSED AND HOW CURED.

Speaking of pickled brood, Mr. France said it was not a contagious disease, and is produced only by starvation, usually occurring during the honey-dearth between dandelion and clover bloom. To prove the correctness of this, Mr. F. selected a large apiary which had in previous years been regularly afflicted with the disease. Every other row was lightly fed every night during the spell mentioned. No colony so fed contracted the disease, but the others did. His conclusion was that feeding will always prevent or cure pickled brood. Feed any way when there is a let-up in the honey-flow, between the flows.

HONEY-PACKAGES.

Mr. France, being an extracted-honey man, was considerably "pumped" on the matter of producing and selling the article. As a retail package, he did not speak with favor of the Mason glass can. The green color of the glass gives the honey a bad appearance; besides, the honey siphons out and besmears the can. He prefers a tin package entirely covered with a flashy label. For large packages he would rather handle a 500-lb. barrel than a crate of two 60-lb. cans. They are back-breakers, he says.

A KINK IN HANDLING A CRATE OF SQUARE CANS.

I want to mention here a Coggshall trick of handling the crates holding two 60-lb. cans. He tilts the crate on the edge cornerwise, and thus slides it over the floor at — well, lightning speed, thus avoiding the carrying of them. Of course, eventually they will have to be lifted if to be tiered up.

HONEY VINEGAR VS. ACID VINEGAR FOR PICKLES.

Mr. France spoke of inducing a large pickle-factory to make their vinegar of honey. On inquiry they informed him that they used acids to make their vinegar. Acid vinegar will eat up the pickles, he told them, while honey vinegar will keep them in fine order indefinitely. Has it really come to this, that poisonous acids must be used when large quantities of apples, and honey in the flowers, go to waste every year—enough, if made into vinegar, to supply the whole world with a wholesome article? This ought to be stopped for the sake of the welfare of the nation.

A short time ago, when passing the wine-cellar of Mr. Maxfield, the wealthiest man in my town, I noticed a large glass jug boxed in wood, of the capacity of ten or twelve gallons, outside of the establishment. I remembered these jugs from my boyhood days as being used for sulphuric acid. The attendant of the cellar, an honest German from the "Fatherland," stood near by, and I asked him about the jug — what it had contained—and he said, "Sulphuric acid." I made no more inquiry as to what they used the stuff for, but I had my opinion about it. The owner of the establishment, and of innumerable farms and vineyards in the vicinity, evidently can not make money fast enough producing an honest grape wine, so he tries to increase his profits by the use of sulphuric acid in his wines, and thus helps to destroy the stomachs of his customers. It is the same with the acid vinegar. The use of it should be prohibited. Perhaps a large share of our inferior grades of honey could then be worked up into vinegar.

WHEN TO PUT EXTRACTED IN RETAIL PACKAGES.

Mr. France said that it had bothered him, sometimes, when filling retail packages, because a scum would rise on the honey after standing a while. But he found that, after storing the honey in a tank for a time, no scum would rise. Honey should, therefore, not be drawn into retail packages as soon as extracted.

I would say that it is not wise to fill retail packages ahead of the time wanted for the trade, on account of the tendency of almost all honey to granulate. It is true that, when honey is heated up to about 150 degrees soon after extracting, and bottled while hot, and sealed, it will or may remain liquid for all time. I have some glass cans in my honey-house to-day, Jan. 25, containing honey which was heated the next day after extracting, Aug. 20, and some which was not heated. The former is perfectly liquid, the other is perfectly solid. All honey, however, can not be depended upon to remain liquid, even when heated up as stated. It is better to store honey in a metal tank, and heat it up as soon and as often as it begins to show any granulation, then draw off into small packages when wanted. This method will save trouble and vexation. When one has his customers educated to the point that they will take the granulated honey, that would, of course, make a difference.

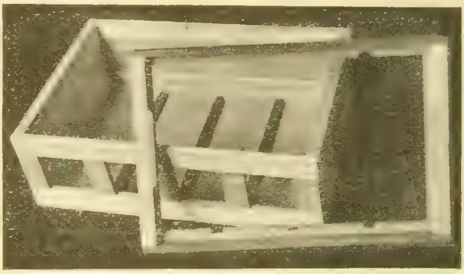
SCRAPING SECTIONS ON COARSE-MESH WIRE CLOTH.

During the afternoon of the second day

there was a little unoccupied time which Mr. Chester A. Olmstead, of East Bloomfield, improved by explaining his rapid method of handling comb honey, scraping and crating it. He said a great deal of time is unnecessarily wasted by many a bee-keeper in getting his honey ready for the market because his comb-honey supers are faulty. The scalloped bottom-bars of section-holders, he said, are a nuisance, as the sections and bottom-bars do not fit each other exactly, causing propolis to be deposited in places where it can not be gotten at very readily. If all the gluing is done on the bottom or top of the section or the *out* edges of the (beeway) section, then it can be scraped off easily and quickly by sliding the sections over a tightly stretched piece of wire screen of ¼-inch mesh; whereas if any glue is deposited in the scallops it has to be removed with a knife, which takes more time. He does not use a top-bar to his section holders; but for what reason I do not now recollect. The section-holder with a top-bar (in other words a wide frame) is my own preference; and why this of A. I. R.'s invention has ever been relegated to the things of the past (by the manufacturers) is really more than I can understand. I can not yet believe that the honey-producers are wholly to blame for that, although I find but few of the bee-keepers around me who speak in high terms of it. I have heard many objections raised to the wide frame, particularly by those who had had no experience with it; but none of those objections have been worthy of any consideration. I believe I am in a good position, judging from the merits of the wide-frame super as compared with other kinds, as I have the different styles in use. Give me the wide-frame super every time. I can handle them quicker on and off the hive; I can take the honey out quicker than from any other super, and I can certainly clean more sections from them in a given time. I have many a time been greatly surprised to learn how long it took some of the friends to crate their honey. With wide frames it is a short job indeed, and I have not used Olmstead's screen-scourer either. But it is with my sections as Mr. O. says: The propolis is just exactly where it can be scraped off with one swoop, and no fooling. I fully agree with Mr. Olmstead — no scalloped bottom-bars for me. A straight and (if any thing) a narrower bottom-bar than the bottoms of the sections is what I want, and top-bar the same. Whether the separator is solid wood, fence, wire screen, or what not, is another consideration which may be taken up at another time.

OLMSTEAD'S METHOD OF PUTTING PAPER TRAYS IN SHIPPING-CASES.

To return to Mr. Olmstead's rapid method of crating honey: He has his own method of placing paper trays, and the strips for the sections to rest upon, in his crates, and he is making some good points indeed. I may be able to give an illustration of his device if my camera will do the work well. The frame which pushes the paper tray—folded around the frame—into the crate has notches cut out in proper places; and after the paper is pushed down to the bottom the sticks are dropped in after putting a little glue on them. A little glue was also dropped into each corner of the crate before the tray was put in, so the paper and also the sticks are held thus in their places. As soon as the frame is withdrawn, the outside sticks are finally put in their places with a little glue, and the crate is ready to receive the sections.



A special point Mr. O. made, was, have the strips in the crates short enough; when a trifle too long they will cause the edge of the paper tray to turn inward just a little, and sections are apt to catch when pushed down, and thus spoil the tray. The follower usually sent out with the crate stuff is placed by Mr. O., not at the outside, but in the center of the crate. He thinks this will serve as a protection when crates are stacked up one on top of the other.

I have never used nails to fasten the strips in the crates, but always took gum arabic for this purpose. I could place them near enough by eye; and gum arabic, not setting like glue, would give me an opportunity to slide the strips a little one way or the other if it seemed necessary. Before shipping the honey the gum arabic would become dry, and hold the strips perfectly. I have never found it necessary to glue the tray into the crate with my way of putting in the trays. I can fold from three to five papers over a board of the right size at one time, and with a little practice it takes almost no time to place the tray where it belongs. Then I drop in the five strips haphazard, and stack up the empty crates thus prepared. When ready for crating sections, the five strips are placed close together, side and side, upon the work-bench, and with the brush the liquid glue is spread on with one stroke; then they are placed back in the crate by eye, as described above. Prepared gum arabic, if it stands around long, will often sour and become moldy. A little salicylic acid stirred in will prevent this. This little kink may be be of value to some.

Naples, N. Y.

[This communication came in some months ago; but owing to a lack of space at the time, and owing to the further fact that many of the points suggested would be more seasonable later on, we have held it until now.

The ordinary process of making foundation subjects the wax to a high temperature long enough to preclude all possibility of any of the germs in the spore form being left alive. We have yet to hear of a case where foul brood was ever transmitted through foundation.

You quote Mr. France as saying that "the hives were boiled, so also the honey." I do not understand whether you mean that the hives were merely immersed in boiling water, and the honey brought to a temperature of 210, and then allowed to cool. One of our old subscribers, Mr. J. A. Buchanan, some years ago boiled some foul-broody honey for seven or eight minutes. He took it off, and, when cool, fed it to his bees. In every one of the colonies fed with this honey, foul brood developed within ten days. A number of laboratory tests have been conducted, showing that the spores of foul brood will sometimes resist a boiling temperature for *two hours*. The spores must not be confused with the active bacilli, which would be killed almost instantly, probably, by a boiling temperature. We shall be glad to hear from Mr. France on this point, as his experience has been very extended. But the question is so important that we can not afford to take chances nor make any mistakes. It won't cost much to err on the safe side.

The scheme of scraping sections on coarse-mesh wire cloth is a valuable one, and I do not remember seeing it in print before. Our subscribers will have a chance to test it within a week or ten days, and we shall be glad to get reports from all who try it.—ED.]

SELLING BOTH BY WEIGHT AND THE PIECE.

Some New Old Ideas.

BY T. K. MASSIE.

Seeing that the question of how we shall sell our section comb honey, whether by weight or by the piece, is being discussed pro and con, I write to ask, why not compromise the whole case by adopting a size for our sections that will admit of selling both ways — do justice to all parties concerned, and end the discussion? A section which can be sold either by the pound—one that will hold a full pound—or by the piece will do this. Of course, all sections of any size whatever will not weigh exactly the same; but I have said, and here repeat, that the 4¼×5×1⅜ section comes nearer averaging a pound than any other size. Well-filled sections of this size will average rather over than under 16 ounces, the size my selfishness causes me to desire. We are all more or less selfish. If I sell a man 20 sections by the piece, and tell him that they will average a full pound, and then place them on the scales and show him that the actual weight of the honey is 20 pounds and 5 ounces, his selfishness causes him to think that he has gotten the best of me in the deal, and he becomes then my permanent customer. *My* selfishness caused me to delight in giving that overweight for the sole purpose of securing a permanent customer. If I had sold him the honey by weight he is likewise pleased. We should also delight in giving full weight. If I charge him half a cent per section more when selling to him by the piece, he is still satisfied, because, looking at the matter from his standpoint, he has a little the best of the bargain. As a rule, the American people always want the best end of a bargain. Then why not adopt the 4¼×5×1⅜ section for a standard?

Since 1886 I have tested more different styles of hives, frames, separators, sections, and other devices than almost any one; and in my early investigations I had a desire to give the results to the public through the bee-journals; but when I would send in my experience the articles nearly always went to the waste basket. Frequently I told of the advantages of two story hives, closed-end frames, shallow frames, wide vs. deep frame tops, sealed covers, etc.; but the result was always the same. When a theory presented itself to my mind I would follow it up to see if it would prove well in practice. I could not get the bees to fill the 4¼ square sections in the T supers with solid tin separators. Theory suggested that the solid separators divided the bees up into too many small divisions. I saw that, while a separator was necessary for best results, it should be as near nothing as it was possible to make it. In 1887 I made 6 separators of perforated zinc by nailing strips $\frac{3}{16}$ inch thick on each side, one on each end and one on the center of every 4¼ inches where the edges of sections would come in contact with it. In part of them I turned the long way of the slot perpendicularly, and in the others it was turned horizontally. I then cut the shoulders (beeways) off the corners of some sections, and placed them in the center of a T super between my zinc separators, the rest of the super being filled out with the tin separators. It was very clear that more bees were at work on the sections between the zinc separators than there were between the tins, and the middle sections were more quickly and better filled than the others.

The next season I placed the zinc at one side of the super, with the tins in the other. Result was about the same, but perhaps not quite so decisive. Theory suggested that these small divisions of bees ought to have side or horizontal communications with each other, and that this arrangement would give better ventilation. Practice (of course the experiment was not a thorough test) seemed to prove the theory a correct one. I had also been testing sealed covers for wintering, and the wide vs. deep frame-tops to prevent burr-combs. In 1889 or '90 I wrote an article for GLEAN-

INGS, setting forth the advantages of "sealed covers," "wide frame-tops," and advocating the adoption of what I there called a "perforated separator;" but the article, like some others, was never published. In that article I predicted that the 4¼ square section and the solid separators would not hold out to be "standard" always; that they both had to go. The great demand that has sprung up for the 4×5 section and fence separator has verified that prediction. I again predict that, ere long, the 4¼ ×5×⅛ section will come into general use. I wish that such was the case now, as I wish to use it in my hive.

In the article above referred to I described how I thought the separator could be made, which was of tin, perforated like queen-excluding zinc, but have the perforations somewhat larger than those for drones, ends cleated where the sections came in contact with the separator, and use plain no-beeway sections. I saw that a vast amount of lumber was yearly wasted in the beeways cut into the sections every year, and insisted that the cleats on the separators should be made to carry permanently the beeways each and every year, save the great loss of good lumber, and rid ourselves of those objectionable corners. This feature is now carried out in the fence separators. I have never seen a Hyde-Scholl separator; but from the description given of it, it seems to embody the identical principles of the one I used, the adoption of which I advocated in the article above referred to. The fence separator carries out some of those features. I am now figuring on a separator by which I hope to use 36 sections in my super. During the fifteen years my hive was undergoing experiment I tried nearly every theory and device I ever saw suggested.

I made a device for raising several queens in one hive, and, notwithstanding the fact that I gave up the use of the Simplicity hive some ten years ago, I still have parts of all these "inventions" scattered around yet, which I can produce to prove, if necessary, that I have not been behind the procession in testing the various styles of hives, frames, etc., and in bringing to the front new inventions.

In May, 1891, I commenced a series of articles in a new publication, *The Bee World*, in which I referred indirectly to a few writers in hopes of drawing them into an argument in favor their pet "standard" theories; but in this I again failed. It seemed to me that some of our bee-keepers were so deep-seated in their prejudices, and so shortsighted, that they thought a new hive or other appliance, even though better than what we were then using, could never become standard.

Tophet, W. V., Feb. 20.

[So, friend Massie, you find that separators with free communications back and forth give better results than those that are solid, confining the bees to small compartments in their comb-building. Your experience has been that of hundreds of others who have used fences in comparison with solid separators.

The 4¼ ×5 section is another change in size, and it would, perhaps, be very difficult to get it introduced. It was hard enough to start the 4x5; and the general public wants something that can be sold at retail for 15 cents rather than 20.

We did not know that we had rejected any of the communications referred to. If we did they probably came at a time when we were overcrowded with copy. At such times, unfortunately, we are not able always to use the best or most important that comes to us. Why this should be so, no one, perhaps, but a publisher can fully appreciate.—Ed.]

FIRST SWARMS.

How to Hive Them in the Parent Hive and Make Them Stay; When to Practice Shook Swarming; Some Seasonable Kinks.

BY J. E. HAND.

Every honey-producer knows how annoying it is to have a swarm issue and leave a lot of partly filled sections on the parent hive, and near the close of the honey harvest. Perhaps the supers from the old hive would not fit the new hive. I well remember, about fifteen years ago, this was exactly the fix I was in, and I knew that, if I could hive back those swarms and make them stay a week, those sections would be filled, and it would then be so near the close of the harvest that the bees would have no further desire to swarm; but how to make them stay, that was the rub. Right at this time I ran across an article in one of the old bee-journals which I was reading, as I was lying under the shade of the trees one hot day in July, watching for these same swarms. I believe it was from the pen of the venerable Chas. Dadant. It ran thus: To hive back swarms and make them stay for a week to ten days, and do work equal to any new swarm without cutting out any queen-cells, simply hive the new swarm beside the parent hive, and, after 48 hours, shake all the bees of the new swarm out of their hive in front of the parent hive, and let them run in. The desire for swarming is now satisfied, and the queen-cells will be destroyed. I then tried this plan on all swarms that came out after that during the rest of that season, and every swarm so treated worked with a vim equaled by only a new swarm, and none of them swarmed out again. This is one of the old kinks that is worth keeping in sight. I shall try it again the coming season.

I notice on page 119 Mr. Doolittle advises making "shook" swarms a week or ten pays before the honey harvest. Now, I know from sad experience that this is very dangerous advice; and as swarming time is near, some may be led to make such swarms to their cost. I once thought that was the right way; but I know better now, and I paid for my knowledge. I went to an out-apiary some five years ago, and made about 20 brushed swarms, as I supposed, about a week before the honey harvest; but, alas! it turned out to be about one year before the honey harvest, for neither clover nor basswood gave any surplus, and you can imagine what a job of feeding I had; whereas, if I had waited until the honey-flow was on in good earnest I should never have made them, and so would have saved myself a lot of trouble and expense. My advice to all is, be sure of your honey harvest before you make any artificial swarms. The bees themselves know a great deal more about these matters than some bee-keepers, and they never swarm until there is plenty of honey coming in. It is well to follow nature's plan along the line of swarming as well as queen-rearing.

Birmingham, Ohio, May 5.

[The hint here given from the much respected Charles Dadant is a valuable one, for the simple reason that, in a large number of apiaries, there is a diversity of hives and supers. This often makes it impracticable—yes, impossible—to carry out the usual mode of procedure, to hive on empty combs or frames of foundation on another hive put on the old location, putting on it the super that was on the parent hive. I should be glad to get reports from those who have either tested or can test the Dadant method of preventing after-swarms.

Regarding the method of making shook swarms a week or ten days before the honey harvest, we have had other reports showing that the bees must not be shaken much before actual swarming preparations have been made, or else the whole artificial plan will result in failure. The bees must begin to *feel* a condition of prosperity that will bring on a desire for natural swarming, before it is practicable to carry out forced swarming.—Ed.]

FLANGED CUPS.

Is it Necessary to Use Royal Jelly? shall Protectors be Used?

BY SWARTHMORE.

Mr. Root:—I trust you will allow me to defend my position in the criticism of Mr. Phillips' article on "Modern Queen-rearing," in your May 15th issue. In your editorial footnote you seem to be laboring under the impression that Swarthmore flange cups *must* be drawn "one at a time." If you will read again my notes you will see that I make special mention of the fact that one cell or the barful can be removed from the top of the hive without lifting the frame; and, I may add, without even opening the hive, or in any way disturbing the bees, without smoking or prying. Simply raise the cover, and there they are. Take one or all as you like. When cells are attached to the under side of a bar, in the middle of a brood-frame, as you recommend, it is *always* necessary to lift that frame before you can get at your cells. This operation tears the bees apart and otherwise disturbs them, and they do not recover from the shock for several hours. During this time the cells are, to a certain extent, neglected, and honey-gathering is seriously retarded.

When you draw a flange cup, or lift a Swarthmore cell-bar, no ruptures are made, thus no mending of brace-combs has to be done by the bees. The cluster about the cells need not be even broken; in fact, the bees continue to feed the cells while it is in hand.

I do not wish to force my methods upon any bee-keeper; but I should like to be understood by any who, perhaps, would like to use methods to reduce labor and increase product, both in quantity and quality. The flange cup will win out, for the reason that it saves much labor, increases product, adds to quality, and reduces expense—four most excellent points, you must admit.

Now as to swabbing new cups. You say it is just as easy to transfer jelly. I say it is not, and there is just where we differ. Does it not stand to reason that a person can simply thrust a stick into cups more rapidly than he can transfer a drop of jelly into each? It need not be jelly taken from a queen-cell. It can be any chyle food found in any cell. All the cups may be primed at once, and done with for ever, as long as that cup lasts, and we have had some in use four years.

By the jelly plan you must do it while the food is warm or you will chill the larvæ; furthermore, you must have it fresh — all careful, painstaking work; and if it is really unnecessary, why insist that bee-keepers fuss in that manner, if a better way has been found?

I thank you for your kind mention in the rest of your footnote, and feel encouraged to make further study into labor-saving methods for bee-keepers.

Swarthmore, Pa., May 27.

[To this our Mr. Geo. W. Phillips, who has reared queens in Jamaica, his old home, and who has subsequently been our foreman at the Medina queen-rearing yards, replies:]

Mr. Pratt's article on "Modern Queen-rearing" (see May 15th Gleanings) was published when I was hard pressed with work at school, and, consequently, I could not give it the attention it demanded. Since he has written again, however, I take the opportunity to make a few remarks with reference to the points on which he differs with me, and declares to be "wasteful, extravagant, or unnecessary."

Is the use of royal jelly in grafting "wasteful" in time, patience, and quality of queens? Has Mr. Pratt found by actual experience that the supplying of jelly wasted his time and tested his patience? The job may be so expeditiously performed that I don't see how a bee-keeper of his caliber could find it trying; and as for saying that its use reduces the quality of the queens, I am sure the assertion is so well refuted by experience that any attempt on my part to disprove it would be superfluous.

That cells may be grafted without jelly, I am aware; but I am also aware that the percentage of such cells accepted will be smaller than the other. But how nicely will the tiny drop of jelly receive the larva from your grafting tool, while to lay one on the hard dry bottom of a cell is a comparatively difficult task! Besides, when one has over a hundred cells to graft at one operation the use of jelly becomes a necessity or the larvæ will die before he gets through.

There is not nearly as much danger of getting larvæ chilled by using "cold" jelly as Mr. Pratt represents. There is more danger of having it exposed to the air, and becoming hard and unfit for use. Perhaps jelly will never become too cold to use where the weather is warm enough to allow the transferring of larvæ. True, bees will remove the jelly supplied in grafting, but not until after it has served its purpose.

As a rule, queen-cells built from wooden cups may be given without protectors; yet, since it entails but little extra work is it not better to give them protectors? No longer ago than yesterday one of the apiarists here called my attention to a cell, given unprotected, that had been torn open at the side. Now, during a honey-flow bees will often build comb all over the cells; and in removing this a cell may be slightly damaged. The bees will destroy this promptly; while if given in a protector it will hatch in due time. It may be, however, that Mr. Pratt can accomplish in his miniature nuclei what can not be done in larger colonies.

Mr. Pratt says it is wasteful to destroy good compressed cells every time virgins hatch. Did I say otherwise? Let me quote from "Modern Queen-rearing." . "This makes an artificial embryo queen-cell of great durability. All that is necessary in order to use it again is to trim off the outgrowth even with the wood, and let the bees have access to it, when they will clean out the residue of royal jelly left in the bottom by the last queen hatched." Is this destroying the cell? Neglect to trim off the outgrowth, and graft in the full-sized cell, and the bees will soon gnaw it down to the proper length — that is, if they accept it at all.

I can see that using a cell-frame so constructed that the removal of the cells from a colony could be accomplished without lifting out the entire frame would be an advantage. But a detachable top-bar can be easily used with our wooden cups, and the arrangement would be as handy as Mr. Pratt's; in fact, Mr. Huber Root recommended such a contrivance to me more than a year ago, but somehow I neglected using it. I am always open to conviction, and am ever ready to admit a blunder or adopt the superior device of a brother bee-keeper. I have been fair in trying Mr. Pratt's queen-rearing system, but have not been able to make it work. I tried it in Jamaica, and in this country as well, but have never succeeded in getting even one queen fertilized. Moreover, I am not alone in this respect. I was recently speaking to Mr. F. A. Hooper, of the firm of Hooper Brothers, Kingston, Jamaica, one of the largest queen-breeding establishments in the world, and he declares that their experience has been identical with my own. Nor are these the only ones. That Mr. Pratt's system is practical in his own hands, I firmly believe; but until he can render it workable in the hands of the masses it is hardly fair to expect us to adopt it in preference to those which have proved to be satisfactory. —G. W. P.]

Heads of Grain
from different fields

DOES A QUEEN MEET A DRONE MORE THAN ONCE? MORE PROOF THAT SHE DOES.

As Mr. Phillips, on page 286, has asked others to report, I will give my experience. In 1884, while standing by a hive I saw a queen enter, evidently having just mated. As I had watched and seen one go and return with the drone organs attached two days previous to this, I was astonished. My first thought was that a queen had entered the wrong hive. On opening the hive I found but the one queen moving quietly over the combs, and she appeared to be at home. Up to this time I had accepted the statement of others that queens mated but once. After this I spent all the time I could spare watching queens but saw nothing more that season.

June 22, 1885, I saw a queen take her flight, and return, evidently having met a drone. The same queen flew out and returned June 24, with the same evidence of having met a drone. July 10 I saw another go out, and return with the drone organs attached. The same queen flew out and returned with the drone organs attached, July 24.

I have spoken of this to a number of old bee-keepers, but they all laughed and winked at it.

Now, to me this does not seem strange or unusual. Copulation does not always impregnate. There is proof of this in all domestic animals, and why not with bees and other insects?

Mr. Phillips also says, page 286, that the copulatory organs of the drone are, after a short time, ejected. Is he sure of this? Some time in the '80's Thomas G. Newman, in the *American Bee Journal*, made the statement that they are mostly absorbed. My own observations confirm this. If Mr. Phillips will rear a queen this season in a single-comb hive, with glass sides, and, after she is mated, go once in two or three hours he will see that the drone attachment will slowly diminish in size, apparently drawing in until, by the second morning, it will disappear. HENRY JONES.

Brant, Mich., May 10.

[This is the third report we have had of this kind, and I believe we may now conclude that a queen, before she begins actual laying, may meet a drone more than once. Our correspondent makes the point that "copulation does not always impregnate;" and when he says there is proof of this in all domestic animals, he is stating a well-known fact. It may be questioned, however, whether the queen, *after she once begins laying*, meets a drone the second time. Editor Hutchinson suggests that it is possible because of the fact that queen-breeders have had reports of pure tested queens that they have sent out turning hybrid. But I account for this experience, which is quite common among all queen-breeders, by the fact that a daughter inadvertently, or at least unknown to the owner, supplants her mother. She has the same markings, and is supposed to be the same queen; but she has met a hybrid or black drone. Her owner naturally supposes that she is one and the same queen—that she "never was pure in the first place," and that he "now has proof of it," when in actual fact he is entirely mistaken. Cases of this kind are so easily possible that I should prefer to accept this theory to the other one, which seems so improbable.—ED.]

HOW TO GET THE LARGEST INCREASE BY DIVIDING.

I have six colonies of Italian bees, fairly strong. I wish to increase so as to secure as many colonies as possible by fall. How many frames to a nucleus would give the best results? Would it be preferable to buy and introduce queens, or give each nucleus eggs and brood, and allow it to raise its own queen? Forage in my locality consists chiefly of flowers and fruit blooms, white and sweet clover. I am willing to feed if better results can thereby be secured.

My bees are pure Italians, or supposed to be; yet one colony is, and always has been, so cross as to make handling it very difficult and unpleasant. Would removing the queen from this colony, and introducing one from a colony more well-disposed, correct in time this objectionable feature?

Chicago, Ill. E. W. P.

[I would not have the nucleus less than two-frame, and generally three-frame would be better. If you wish to make a large increase in the shortest time possible, buy queens in dozen lots. If economy is a consideration, then raise your own queens. Give to each nucleus, as fast as it is formed, a ripe queen cell, or, better still, a young virgin in an introducing-cage. If you raise your own queens, start a batch of cells; and when the virgins hatch, or about the time they hatch, form the nuclei by dividing each colony up into two and three frame nuclei. The two-frame should have more brood, and the three-frame may be given the same quantity of brood in three combs. The entrances of all these nuclei formed should be closed for three days with wire cloth; but be careful to avoid smothering the bees. If the bees are shut in three days they will be likely to stay in the location when released. The cells or virgins may be given at the time of forming the nuclei. The nucleus left on the old stand need not, of course, be confined.

The colony having the cross bees should have the queen killed and another one in her place.—ED.]

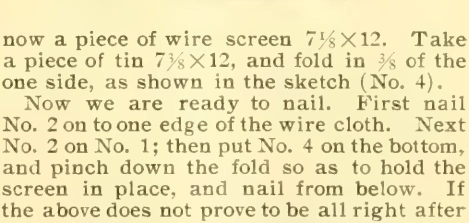
A SPECIAL HIVE-VENTILATOR.

I have seen in the *American Bee Journal*, as well as in Dr. Miller's book, that the bee-keeping world is in need of a better ventilator for the front of hives when handling or moving, and I send you a sketch of the one I made a year ago, and find I could not get along without it, and wish to offer it to the public through you in return for the good I receive from GLEANINGS and the *American Bee Journal*.

ALLAN'S VENTILATOR.

Take two pieces of wood 7 inches long, ⅝ thick, one inch wide at the wide end; run to a point or wedge at the other (No. 1).

Take another piece of wood ⅜×⅝ by 12 for an eight-frame Dovetail hive (No. 2); now a piece of wire screen 7⅛×12. Take a piece of tin 7⅜×12, and fold in ⅜ of the one side, as shown in the sketch (No. 4).



Now we are ready to nail. First nail No. 2 on to one edge of the wire cloth. Next No. 2 on No. 1; then put No. 4 on the bottom, and pinch down the fold so as to hold the screen in place, and nail from below. If the above does not prove to be all right after its introduction as a ventilator when handling hives, I will give up. Try one and let me hear from you. W. L. ALLAN.

Monterey, Mex.

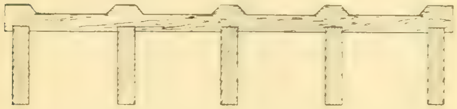
[You do not say *how* you use the ventilator; but I assume that the sharp side or end is shoved into the entrance as far as it will go, the wire cloth passing under the frames. This makes it improbable that the bees would suffocate, as they would have to cover up the whole wire cloth. While they might do this they probably would not. I do not see why it is necessary to use the tin strip as shown in the drawing. There are some things that you have not fully explained.—ED.]

PLAIN SECTIONS WITHOUT FENCES.

I herewith inclose you a cut of the separator I have made, and used last season on several hives with the plain sections, as an experiment. I find it stronger than the fence. It is less apt to come apart than the latter. By the use of foundation in full sheets with this separator, the bees build nice straight combs as with the fence. I did not try strips for starters.

C. J. HOFSTETTER.

Fort Jennings, O., Apr. 11.



Top-bar, ¼x1 inch; cleats, ¼x¾ inch; top-bar is cut out at the bottom, and the cleats are pressed in and glued, or nailed from the top. Top-bar may be made like cut, to hang in super, or flush at ends to rest on tins.

[While such a device *could* be used, yet in a strong honey-flow the plain sections would be liable to be bulged and uncratable. In my opinion it would be very unwise to use many of them.—ED.]

THE BINGHAM SMOKER.

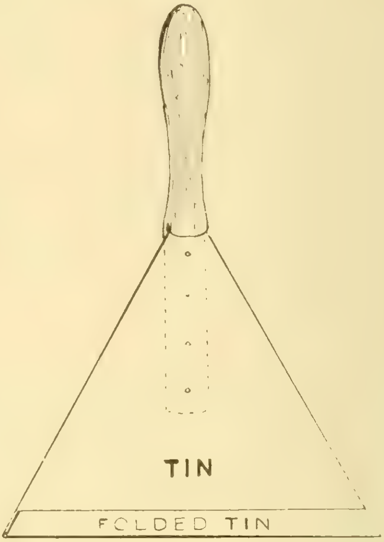
Mr. Root:—Accept my sincere thanks for your timely and kind footnotes relating to Mr. Somerford's smoker remarks. Thanking you for the proffer of space in GLEANINGS, I can hardly improve your footnotes. As I have never received a complaining letter about the direct-draft smokers, of course I must rely entirely on the hundreds of letters extoling them. Many of those letters are orders for another smoker, with a remark about like this: "I have been using my old smoker 19 years. It is good yet, but I want another." These periods of use run from 10 to 21 years. I will make this proposition: If Mr. Somerford will send a money order for $5 I will deliver to him in Cuba a four-inch copper smoker, the best ever made, and one that will last as long as he will keep bees. Of course, this is a special offer for a special smoker, the like of which has never been seen. Such a smoker at such a price would be economy as against his experience. If Mr. Somerford would prefer to have you see the smoker, and readdress a freight, the same to Mr. S., it would be satisfactory to me to send it via Medina.

T. F. BINGHAM.

Farwell, Mich., May 23.

A CONVENIENT HAND TOOL FOR FASTENING FOUNDATION.

I have never seen a foundation-fastener, to be worked by heat, sold for a small sum. I have made one for my own use, whereby I can fasten foundation much better and faster than by pressure. It is made of a piece of tin in the shape of the cut. I never timed myself except once, when I fastened foundation in 98 sections in 25 minutes. Fold the tin at the dotted line. Fasten a wooden handle on the small end of the tin, and, when completed, it should resemble the cut.



L. EUBANK.

Guilford, Ind.

A PRETTY APIARY IN AUSTRALIA.—SEE PAGE 594.

We send with this a photo of one of our out-apiaries of 95 colonies near the river Murry, Mildura, Australia. We trust you will receive the same safe, and that you will reprint it. We are sorry we can not give a short article on the same, as we have only just established it; but we will try to send something next year.

NETTLETON BROS. & DEAN.

Mildura, Australia, March 29.

Can I, without injury to my bees, repaint the hives? GEO. M. PHIFER.

Charlotte, N. C., March 10.

[You can paint your hives while the bees are in them, without any difficulty. I would suggest, however, that the entrances be painted toward night. By morning they would be sufficiently dry so as not to cause trouble to flying bees. We make it a rule to paint our hives right in summer weather after the honey-flow, and have never discovered any inconvenience.—ED.]

MODERN QUEEN-REARING.

The controversy on queen-rearing, which has been going on in GLEANINGS for some time, has much interested me, a bee-keeper of over 50 years. The early methods of queen-rearing and those of Alley and Doolittle are familiar to me; they have been useful and instructive to us all. Apiculture, like every thing else, has made great progress during the last 20 or 30 years, and we must endeavor to keep pace with the times. It is well not to be too hasty in adopting new ideas or views of others; at the same time, we must not be so conservative as to be satisfied with old methods we have used, and think they can not be improved, or be prejudiced against any thing that is new, and that we do not thoroughly understand. Equally good results are frequently to be obtained with less labor and expense. All, I think, will agree that the less a colony is disturbed by frequent manipulations, the better will be the result; the frames in the brood-chamber should be lifted out as little as possible, and any manner of rearing queens that avoids constant disturbance must be a great advantage.

Mr. E. L. Pratt, in his article on page 492 on this subject, has fully explained how this can be done with a less amount of labor and better results. Mr. Pratt is evidently a very close observer, and with his system, the use of flanged cups resting on a removable top-bar, with holes to receive them, he is able to watch the action of the bees cleaning out any royal jelly that is placed in the cups, or the development of the cells, which he describes. With the removable top-bar holding cups, he can not only "pull out a cell without lifting the frame," but he can obtain all the advantage you claim by removing "the frame to take a pick of the best," "or discard those that have been rejected, and substitute others in their place much quicker" than by raising the frame and disturbing the bees as you have to do, as I understand from your criticisms in your note.

I think, Mr. Editor, you must have read this article hastily or you would have noticed the points to which I have called your attention clearly described by Mr. Pratt, where he mentions the few points in Mr. Phillips' article, which he criticises as being either wasteful and in some cases extravagant or unnecessary. Who was the first to use wooden cups and when? It will be interesting to know if there is any record in GLEANINGS, if you could kindly give your readers the benefit of it.

Philadelphia, Pa. J. M. HOOKER.

[See answer to Swarthmore on page 601. —ED.]

BEES ON ROOFS AND IN TENEMENT HOUSES.

I live on the third floor in a three-tenement house, and should like to ask if you think it would be practical to make a start by keeping the hive in the front entry on the third floor, and arranging it at the window so that the bees can come and go into the hive without their getting into the entry. The owner of the house objects to their being out in the yard on account of children; or would it be more practical to hire a lot close by and start in a small way by having one or two hives to start with? ALBERT W. DAKIN.

Olneyville, R. I.

[It would be perfectly feasible to have a colony of bees on the third floor of the tenement house, with entrance communicating with the outside, in the manner suggested by you. Perhaps you could get permission to use the roof of the building; if so, you would be enabled to put out several colonies. In that case it would be necessary to provide some sort of shade for the heat of the day, as the radiation of the sunlight on the roof would have a tendency to melt down the combs unless hives were protected.—ED.]

NOT TRUE THAT CANDYING IS A PROOF OF PURITY.

A wholesale grocer to whom I sold honey some time ago asked me if it were true that the granulating of honey is an evidence of purity. I assured him that it was to a great extent. He then told me that a few years ago he bought some bogus honey in jelly-tumblers from a molasses firm. During the winter that honey candied solid.

Ft. McKavett, Tex. F. L. WIGNALL.

[Glucose honey will candy providing it is not almost entirely glucose. We have samples in our office that are two-thirds and three-fourths glucose that we fixed up ourselves that have granulated solid, but they do not look the same as pure honey that has candied to a solid condition. It is a wrong impression that bee-keepers have that glucose mixtures will not candy; and it is one that has done a great deal of harm, because the dealers have been claiming to their patrons that the bottled stuff that they had will all candy, and that it won't candy unless it is pure. You can readily see how such heresy would hurt the bee business. —ED.]

BEES DYING OF DYSENTERY.

I noticed in front of one of my hives, the ground literally covered with dead bees. I have been feeding good candy to get my colony up to the standard. These bees have a swollen appearance. Do you think the case paralysis? What would you advise? S. A. BUTLER.

Belleville, Ill., Feb. 6.

[The case mentioned is probably one of paralysis and not of dysentery. If the former, it will have been cured by this time; if the latter, spraying powdered sulphur on the bees at night, when they are all in the hive, would probably do much to effect a cure. See editorial on this subject on page 482, May 15th GLEANINGS.—ED.]

MILK FOR SEVERE CASES OF STINGING.

I note what you say, page 502, May 15, in regard to the two-year-old son of Mr. and Mrs. F. W. Metcalf being stung to death. That reminds me of a serious case of stinging at my apiary last year. One of my neighbors came along when a swarm was out. He was anxious to help hive them, and in so doing he got stung badly. In a short time I noticed he talked like one with a bad cold. His mouth was drawn to one side, and his tongue was so thick he could hardly talk. We were near the milk-house. My wife got a pan of milk, and he drank all he could. In a short time he was better. He thinks death would have been the result if he had not had relief very soon. I have seen two other cases similar to the above, and milk gave almost instant relief.

Freer, Minn., May 24. F. B. Jones.

[Milk might neutralize or dilute an active poison in the stomach; but I don't see how it could bring relief when the poison was not in the stomach but in the blood.—Ed.]

SUCCESSFUL USE OF FORMALDEHYDE FOR THE CURE OF BLACK AND FOUL BROOD.

As I have had several letters wishing to know the result of my treatment with formaldehyde for black brood and foul brood, I will say that I have just inspected the apiary of 136 colonies, which were all affected with black brood, which I treated as described in Gleanings, and claimed that the treatment would cure both diseases if used as directed. I found it free, and clean of all signs of disease, and full of vim; and I also find other colonies which I treated, of less number, in other apiaries, free of disease. I think the treatment will cure in most localities if used as directed.

Geo. E. Hinkley,
County Inspector of Apiaries.
Lompcz. Cal., April 16.

[There is not liable to be any visible evidence of foul or black brood so early in the spring, even if the taint of infection were there. You can determine the matter better in June, or, better, in July. Let us hear from you after the last date mentioned.—Ed.]

Owing to a dispute between inexperienced friends, I should like to ask whether the old or new queen leaves with the swarm.

Mrs. Fred O. Jackson.
Muncie, Ind., April 25.

[It all depends on circumstances. As a general thing, the old queen goes forth with the first swarm; the second and third swarms are led off by the young queens. If some of the young queens should happen to be hatched out at the time the first swarm leaves, they might leave with the old queen. The old queen always goes forth with the first swarm if her wings are not clipped.—Ed.]

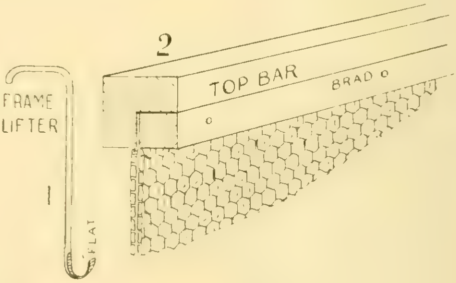
RUBEROID FOR HIVE-COVERS; COST, ETC.

I noted in one of Dr. Miller's Straws, May 1, where he alludes to ruberoid as a material used in Germany as a hive-cover. I think it makes a very good cover. I have about twenty of such weather-covers, made to telescope over the regular cover. The one-ply ruberoid can be obtained at $2.45 per square. It is said to withstand all kinds of climate or weather. It is guaranteed to outlast tin, iron, or shingles, or other felt roofing. With each square is given enough ruberoid cement to cover all nails and tin caps. The only objection I have to it is that it is of a gray color, thus drawing heat to a certain extent. Yet this is the case with all roofing material for hive-covers; and while the rubber part has the consistency of rubber, yet it is no deterioration, as you say in your footnote.

A. H. Weidenberger.
Pleasant Hill, Mo , May 8.

A FRAME-HOOK.

In Gleanings for April 15, page 395, you describe clamps for lifting and holding brood-frames. This reminds me that for some time I have intended to describe my frame-hook which, of all the appliances used in the apiary, I consider the greatest labor-saving and the most simple. It is nothing more nor less than a rod of round 1/8 inch iron, bent as shown in Fig. 1, of any desired length. The upper end is made wide for a comfortable handhold, and the lower is filed to a flat point, and bent to catch securely *under* the top-bar of a frame. Inserted sidewise between the frames this hook is strong enough to move any frame enough to allow of its being pulled out by catching the hook under the top-bar; and when the frame is out, hanging on the hook, it can be turned from side to side for inspection or brushing. Of course, it makes a hole in the comb near the center of the top-bar; but I consider that a possible advantage as a passageway for the bees in winter. The advantages of it are that one can pull out or move any frame that will stand the strain, without having his hand nearer than the length of the rod to the bees.



A METHOD OF FASTENING FOUNDATION.

Another improvement which I have not seen described anywhere consists of a rap id method of fastening foundation in brood-frames. After trying all the known methods, I thought I had found the acme of perfection when the double-groove and wedge system was introduced; but I soon had no end of trouble from the wedge coming out after the frame dried in the hive; so I adopted the plan of cutting clear out (with a circular saw) half of the *under* side of the top-bar. The foundation is then laid on the shoulder which remains, and the half cut out is replaced by nailing with ¾-inch brads tight against the foundation. With practice these can be put on so that the foundation will never "budge," even without wires, and it is easily removed by pulling the brads. J. H. BURNS.

St. Marys, Ont., April 25.

[A frame-hook such as you show in the illustration might be very handy in a tool-box used on special occasions; but for every-day work I should very much prefer some sort of metal pry like a screwdriver, merely to loosen the frames, and then pick them up with the fingers. As a general rule, the more extensive bee-keepers use nothing but a simple pry.

Your method of fastening foundation is the same in principle as that used by E. Kretchmer, of Red Oak, Iowa. He has advertised a frame of this description for a number of years back.

There need be no trouble with the wedges slipping out, providing they are driven below the general surface of the wood. If the wedge is driven so it is just flush it will work out again. It should go down at least $\frac{1}{16}$ inch, then it will never come out.—ED.]

SUBLIMATED SULPHUR.

I have not noticed any thing in GLEANINGS about the kind of sulphur generally used for curing bee-paralysis; but I consider it very important to use only sublimated sulphur for this purpose, also called flour of sulphur, or purified washed sulphur. Crude sulphur is largely mined in Sicily, or made considerably from iron pyrites (FeS^2), and contains generally much arsenic. By heating the iron pyrites, about half the sulphur is separated, still containing considerable impurities with arsenic. To get a purer article, the best sulphur is distilled as is alcohol, the vapor condensing in a cold-storage room as a fine powder called flour of sulphur, or sublimated sulphur. The rest of the sulphur not distilled, not being pure enough, is heated until liquid, and then cast into bars, called sometimes roll brimstone, or bars of sulphur. These sulphur bars are largely ground into a very fine powder, and sold under the common name of sulphur, just as is the pure article, the sublimated sulphur. The difference in price is so little that no attention need be paid to it, as sublimated sulphur can be bought almost anywhere in the United States at 5 to 10 cents per pound retail.

To purify the sublimated sulphur still more, it should be washed in a weak solution of ammonia in water (NH^3 and water), which removes any present sulphuric acid caused by oxydation while in contact with the oxygen of the air, and removes also the arsenic. Then the sulphur should be dried fast, which may be done successfully in the hot noon sun, and then stored in a closed jar, so that as little air as possible can have access to it. Now we have a pure article, washed sublimated sulphur, practically free from acid and arsenic.

Visalia, Cal. OTTO LUHDORFF.

[You will remember that Mr. O. O. Poppleton, while still affirming that the sulphur will cure, believes it is better to destroy the old queen, or perhaps destroy the old colony as well, using the combs and the brood to make a new start. There is a good deal of proof to show that bee-paralysis is an inherited disease from the queen; and, while it can be cured, there is great danger that it will return within a year. If it is not desired to destroy the bees, sulphur them, kill the queen, and give them a virgin from some healthy colony.—ED.]

PUTTING UP HONEY IN BOXES; HONEY CANDYING WITH A COARSE AND FINE GRAIN.

I have just had the opportunity of reading up some of the back numbers of GLEANINGS. On page 1001, Dec. 1, you speak of "Eastern honey" as though it were about all alike so far as its candying qualities are concerned. My experience is that basswood honey will candy in less time than clover and raspberry, and will have a *much* finer grain. I have never stirred any in either case.

I was all ready to put up some in the Aiken honey-bags last summer; but the short crop, with brisk demand, prevented. My plan at present is to put all of my basswood extracted in the bags, partly because it candies with a fine grain, but mainly because that peculiar flavor to which many object is hardly noticeable in the candied state. I wonder if that isn't true of other honeys that are described as being "minty." The clover and raspberry I expect to put up in tin cans partly because I have an early demand for extracted honey, but mainly because I think its *good* flavor is partly concealed by candying.

When the bags first came I opened one, poured some water in it and it leaked just a little. I tried a second and a third, with the same result; so I decided that, when I wanted to use them, I would paraffine them; then, if I wanted to, I could fill them with liquid honey and let them candy when they got ready, without the bother of watching and waiting till the honey was thick enough so the bags wouldn't leak, but not so thick that it wouldn't run well.

I paraffined a few, just to see how it would work, leaving them spread out full size. When I put them away I put them up two and two, slipping the one over the other so as to keep out all dust. Later I filled half a dozen of them, again using one of the empty paraffined bags as a cover. So tight was the fit that the smallest of ants couldn't have got through to the honey, and yet they went on easily enough. At present they are about as hard as a frozen turnip. I am keeping them to hasten granulation in next summer's extracted honey. I proved by trial last summer that the mixing-in of *some* candied honey hastened the granulation of new honey.

I have been asking myself some other questions: Would the mixing of half a pound of candied honey that has a *fine* grain, with 60 lbs. of new honey that, left to itself, would have a *coarse* grain, cause the latter to have any *finer* grain than if the same amount of candied honey of its own kind were mixed with it—the amount of mixing done to be the same in both cases? Also would the mixing of candied honey, that has a *rapid* granulation, with new honey that has a *slow* granulation, cause the latter to granulate any more rapidly than if an equal amount of candied honey of the same kind as the slow-granulating honey were mixed with it? I shall seek to answer them later. I might add that I produce mostly comb honey. But the *home* demand for extracted honey keeps growing so each year that I keep producing more and more of it. John S. Callbreath.

Rock Rift., N. Y., Feb. 22.

[In speaking of Eastern honey I did not have in mind honey produced east of Ohio, in New York, or the New England States, but, rather, that produced east of the Mississippi. Residents in the far West think of Ohio and Illinois as eastern States; and now that our country has become so large, and is populated west as well as east, it is becoming more and more the custom to speak of all territory east of the Mississippi as Eastern United States.

Western honey, especially alfalfa, candies much more quickly, as a rule, than Eastern honey. If I had said clover and basswood, perhaps you would have understood me better. There can be no doubt that mixing granulated honey with ordinary liquid honey will hasten the process of granulation in the whole mass; but whether the fine-grained article would have a tendency to make other honey *all* fine-grained is something I can not answer. I should be glad to get reports from those who have tested it.—Ed.]

HONEY FROM THE OPIUM-PLANT DESTRUCTIVE TO BEES.

In the May 15th issue J. A. Leonard asks about the poppy as a honey-plant. Let me give you my experience with that plant. About six years ago a friend of mine asked me to look at his bees, four hives. We found the bees crawling about on the ground and all over the hives, and dying by the thousand. They had plenty of honey, very few bees in the hive, and would not sting. They finally died out. We did not find the cause. This was early in May. His wife had a very large patch of poppies of all colors in the garden. She gave my wife some seed, and also some to our neighbors. Next year we had a patch about 30 ft. square. I was taken sick about the time they came into bloom, and, while lying there, I could hear the bees humming on the poppies as if a swarm were out. When I got well I went first to the beeyard and found the same condition there as at my friend's. I thought it must be paralysis. I then went to two of my out-apiaries, but found them all right. On opening the hives you could smell the opium. We then destroyed the poppies and got our neighbors to cut theirs down also, and the bees finally were all right. I lost eight colonies and had about ten more weakened so that they made nothing that year. W. J. Dawson.

Benton, La.

SOIL INFECTED WITH SWEET-CLOVER BACTERIA TO MAKE SWEET CLOVER GROW.

If Dr. Miller will order some soil infected with the sweet-clover bacteria to sow with his sweet-clover seed I think he then could get a small patch started, and, once so started, he could in a few years infect his whole farm and successfully raise sweet clover. Some Champaign County bee-man would gladly furnish a sample of soil containing said bacteria. Ben D. Hall.

Ogden, Ill., May 26.

[This was referred to Dr. Miller, who replies:]

I'm inclined to think that there would now be no great difficulty in getting a stand of sweet clover almost anywhere on my place. Plants here and there have grown upon it in different years, enough to establish the bacteria. Enough of these bacteria will be in the dirt attached to the seed to give at least a little start anywhere; and if the plants are allowed to grow year after year in the same spot there will be bacteria galore. So all any one need do to get a stand of sweet clover is just to keep at it.

The same thing is true of alfalfa — the specially interesting part being the fact established by the Illinois Experiment Station, that the bacteria of alfalfa and sweet clover are the same, so that alfalfa will flourish on any ground where sweet clover shows plenty of tubercles on its roots. A little infected soil on the elevated spots of a field will soon infect the whole.

I don't know, but I *think* that, when the ground becomes well filled with the proper bacteria, so as to produce a vigorous growth of alfalfa, it will give down nectar east of the Mississippi as well as west of it.

C. C. Miller.

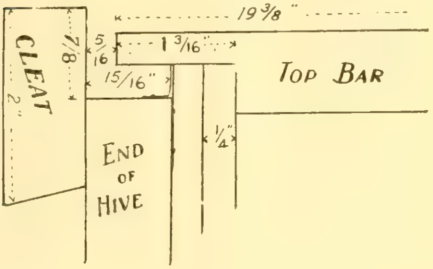
I should like to know if "alabastine" has ever been tried as a bee-hive paint, or if it is of any use as a lasting paint.

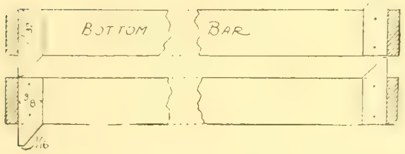
Wanatah, Ind. L. A. Werner.

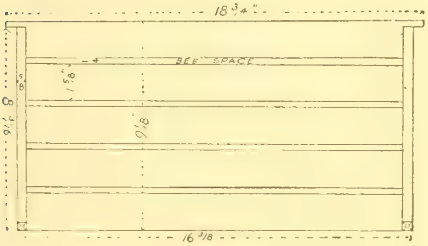
[I have never heard of its being put to such use.—Ed]

A FENCE, DUMMY, OR DIVIDER; A SELF-SPACING FRAME.

I send a drawing of my bee-space dummy. I am going to use it this summer in working for comb honey. I will also use it when the bees are drawing out foundation It is ⅞ thick, same size as the standard frame, and spaced at both top and bottom.







I also send you other drawings showing how I space my frames at the bottom, and how I increase the length of top bar on the frames. **Frank Brunskog.**

Harvey, Ill.

[Your fence, or dummy, I believe, will be satisfactory for the purpose of securing regularly built combs; but it will not be as good as a solid dummy for dividing the brood-nest off or for reducing it down to, say, two or three frames in the spring in order that the little cluster may not be compelled to warm up more cubic air-space than is necessary.

The scheme of lengthening the top bar by cutting out the rabbet, and nailing a cleat on the end of a hive, is a good one. We would have adopted this feature long ago but for the difficulty of making old covers for hives, now in use, fit new hives with cleats as shown. There can be no question at all but that, if all hives could be changed over to the plan shown in the cross-section of the sketch, it would be a great advantage all round. The cleat, moreover, reaching clear across the end of the hive, would make a most excellent handle to lift it by. The projection of the top-bar would be lengthened out, which, to many of our friends, would be a very great advantage, and we should also secure a regulation bee-space between the end of the top-bar and the end of the rabbet, or what will be in this case the inside surface of the cleat.—Ed.]

BEES MIXING IN SWARMS; VARIATIONS IN DRONES.

I have been in the bee business for about 22 years, and have seen some things that I did not understand, nor have I ever seen them explained.

1. I have hived a swarm of black bees half a mile from any Italians, and found several fine ones among the blacks, with pollen on the legs. Do field-bees often unite with a new swarm in that way?

2. I have never seen in your old A B C book any account of barred or yellow drones. I had one last year at Middlebourne, and have yet if it stood the winter all right. The drones had two (I believe) yellow stripes, but were not as bright as the working bees. The fuzz or long hair on them hid them more. Does this often occur, or is it a freak of nature? **G. W. Carpenter.**

Rapidan, Va., May 23.

[The ordinary field-bees will very often unite with a swarm of bees; and it will be nothing unusual to find a few yellow Italians among the blacks after they have been hived. Swarming is a gala day — the one holiday of the year for the bees; and apparently a few field-bees can not resist the temptation to take a hand in the fun, with the result that they become a part of the swarm.

The typical color of drones imported from Italy is decidedly on the leather-colored order. The yellow bands, if they show at all, are very dull or indistinct; but occasionally we get some sports from imported stock that show considerable yellow. Drones of the five-banded stock show beautiful bright yellow bands or bars. Sometimes the whole of the abdomen is one mass of yellow except the tip. It should be understood that the color of the drone does not determine his purity any more than does the color of the queen.—Ed.]

SOME HONEY 44 YEARS OLD.

I clip the inclosed item from the Lewiston *Journal* of Jan. 14, which I think will be of interest considering the discussion now going on in Gleanings. I am trying to find the Brunswick man, and see that honey; then I will report about it.

Lewiston, Me. **S. J. Hyde**

A Brunswick, Maine, man boasts of some honey that has been preserved in a glass case for 44 years, and which appears to be as good as new except that it has shrunk from five to three and a half pounds.

OUR HOMES,

BY A. I. ROOT.

Surely the wrath of man shall praise thee.—Psalm 76 : 10.

I have for years been remonstrating with various religious periodicals in regard to the character of their advertisements. When Electropoise first came out they were among the first to accept it, even when our agricultural papers refused it. Our older readers will remember how they defended themselves; and many of the editors of some of our most respectable journals declared it was a good thing, because ministers used and recommended it, etc. I got the United States Chemist, the best electricians of the world, and all really scientific men, to back me up, and then they, one after another, gave in. The *Christian Endeavor World*, perhaps, was the most stubborn of them all; and it was not till I had had a personal interview with Father Endeavorer Clark that it was rejected from their columns. Recently I have been remonstrating in regard to the character of the medicine advertisements—not only with the religious papers, but with our great dailies. Let me give you an illustration:

Two boys in our establishment, between 15 and 18 years of age, were found intoxicated. Investigation revealed the fact that they had sent to Cleveland for a jug of whisky. They were called up before the members of our firm, and underwent what might be termed in the cities a "sweat-box" ordeal. For a time we could not get them to talk; but the younger one finally ventured the information that they saw a piece in the paper about a man who drank "Duffy's malt whisky," and lived to be 107 years old. Now, this same daily had some of the most vigorous editorials, favoring the Anti-saloon League, and all temperance measures; but these boys failed to discriminate between the *editorial matter* and the statements they saw on the *advertising pages*. I wrote this Cleveland daily, stating the circumstances, and remonstrating because of the inconsistency of teaching temperance editorially and advertising whisky in the same paper. They replied that they lamented (?) they could not see their way clear to exclude such advertisements. They said this particular whisky came rather in the line of patent medicines; and they expressed a doubt as to whether they *could* legally exclude the advertisements of this special firm when they accepted other advertisements. This was a new thing to me; but by the help of the *New Voice* I quoted to them a decision of the Postmaster-General, that the proprietors of any periodical were at liberty to refuse any or all advertisements that were not suitable in their judgment for a home paper, or for *conscientious* principles. I made haste to put this decision before the managers of this daily, and received a very courteous reply, thanking me for the pains I had taken; but Duffy's malt whisky keeps right on in every issue of that paper. At present there is running in the Duffy advertisement a full-length picture of a Methodist preacher. This preacher declares he is not only a minister of the gospel, but a temperance reformer; but, notwithstanding, his life was saved by Duffy's malt whisky when the doctors had given him up. I presented the matter to a Methodist clergyman, and he said they had repeatedly chased down such advertisements, and they have proved to be fakes in almost every instance. As soon as I saw the advertisement about the man who lived to be 107 years old, I drew my own conclusions about the truthfulness of the statement. Now, I would suggest right here that, if this statement is an out-and-out falsehood, the Methodist Church could begin action on these "Duffy" people by law, for slander on that great religious body; and we could come on them again for ruining our boys by their false statements in the advertising pages. Christ said, "I came not to bring peace, but a sword;" and I for one am ready to advocate the sword, and take the lead if nobody else will. Let me digress a little.

Edward Bok, of the *Ladies' Home Journal*, has for years past been criticising pretty severely our Sunday-schools, occasionally the clergy, and finally the religious press. When I saw the article on patent medicines, in the issue for May last, I had a big laugh, and I thought of our text, "Surely the wrath of man shall praise thee." I have before told you that my former pastor, A. T. Reed, evangelist, once said in his morning prayer at church, "O Lord, we thank thee for our enemies, for they tell us our faults when nobody else will do so;" and this thought has all through my life since that time been an inspiring one. Do not grow weary because you have enemies. Try to receive their hints (?) and hits, may be, with a Christianlike spirit, a hopeful face, and your enemies will do you more good than your friends. Now, I do not mean to say that Mr. Bok is really an enemy to Christianity, but it has sometimes looked that way. The article I have referred to contains the following:

> The following percentages of alcohol in the "patent medicines" named are given by the Massachusetts State Board Analyist in the published document No. 34:

	Alcohol.
Lydia Pinkham's Vegetable Compound	20.6
Paine's Celery Compound	21.0
Dr. Williams' Vegetable Jaundice Bitters	18.5
Whiskol, "a non-intoxicating stimulant"	28.2
Colden's Liquid Beef Tonic, "recommended for the treatment of alcohol habit"	26.5
Ayer's Sarsaparilla	26.2
Thayer's Compound Extract of Sarsaparilla	21.5
Hood's Sarsaparilla	18.8
Allen's Sarsaparilla	13.5
Dana's Sarsaparilla	13.5
Brown's Sarsaparilla	13.5
Peruna	28.5
Vinol, Wine of Cod-liver Oil	18.8
Dr. Peters' Kuriko	14.0
Carter's Physical Extract	22.0

Hooker's Wigwam Tonic	20.7
Hoofland's German Tonic	29.3
Howe's Arabian Tonic, "not a rum drink"	13.2
Jackson's Golden Seal Tonic	19.6
Mensman's Peptonized Beef Tonic	16.5
Parker's Tonic, "purely vegetable"	41.6
Schenck's Seaweed Tonic, "entirely harmless"	19.5
Baxter's Mandrake Bitters	16.5
Boker's Stomach Bitters	42.6
Burdock's Blood Bitters	25.2
Greene's Nervura	17.2
Hartshorn's Bitters	22.2
Hoofland's German Bitters, "entirely vegetable"	25.6
Hop Bitters	12.0
Hostetter's Stomach Bitters	44.3
Kaufman's Sulphur Bitters, "contains no alcohol" (as a matter of fact it contains 20.5 per cent of alcohol and no sulphur)	20.5
Puritana	22.0
Richardson's Concentrated Sherry-wine Bitters	47.5
Warner's Safe Tonic Bitters	35.7
Warren's Bilious Bitters	21.5
Faith Whitcomb's Nerve Bitters	20.3

In connection with this list, think of beer, which contains only from two to five per cent of alcohol, while some of these "bitters" contain ten times as much, making them stronger than whisky, far stronger than port or sherry, with claret and champagne far behind.

In connection with the above table, Mr. Bok proceeds to score the religious periodicals and the W. C. T. U. as well. I hope the friends who read Mr. Bok's editorial will also read the various replies made by the W. C. T. U. in the *Union Signal*. Had not the W. C. T. U. paved the way, and raised the standard of public morals to the extent it is now, Mr. Bok would not have dared to come out thus openly for reform. Let me quote two sentences.

> There are no papers published that are so flagrantly guilty of admitting to their columns the advertisements, not only of alcohol-filled medicines, but preparations and cure-alls of the most flagrantly obscene nature, as the so-called religious papers of this country.
>
> Beside me, as I write, lie issues of some twenty different "religious" weeklies, the advertising columns of which are a positive stench in the nostrils of decent, self-respecting people. Let the Woman's Christian Temperance Union officers counsel their publishers to omit these advertisements; and if they refuse, let these people discontinue their patronage of the paper.

The first of the two extracts may be pretty nearly right, except that I would not use the words "flagrantly obscene." A few of our religious papers have given place to medicine advertisements that might almost be so termed, but not many.

In regard to the second extract, the words "positive stench" are altogether too strong. Did not Bro. Bok have a *Police Gazette* lying on top of those Christian weeklies? and was not that the periodical he had in mind? It would be a rather unhappy combination, after all, to see the *Police Gazette* in such company.

I have said a good many kind words for the *Advance*, of Chicago. I have quoted from its columns in these Home papers; but I have also written to them twice, remonstrating against the character of their advertisements; and I have just about decided not to take it longer in my home unless a reform is made. They have so far never made any reply to my remonstrances.

Let me right here congratulate the editors of our agricultural papers. There is no escaping the fact that, at the present time, they hold up a higher standard of morals in some respects than do our religious weeklies. They reject advertisements that are accepted by many of the religious press. We must, however, make some exceptions. The editor of a periodical called the *Electrician*, when he was helping me in my crusade against Electropoise, told the venders of the humbug toy he would give them $1000 if they would get their advertisement in a single issue of the *Sunday School Times*. It never got there; and, may God be praised, we have at least one religious paper whose advertisements may be read aloud to the whole family every day in the year.

Now, friends, comes something hopeful. Every few days a periodical comes out declaring that hereafter no medicine advertisement nor any thing of that sort shall thereafter disgrace their advertising department. Let me copy from *Success:*

> We do not admit to our columns medical, liquor, tobacco, or other advertisements objectionable in the home.

You will notice that that includes tobacco among intoxicants and patent medicines. You may, perhaps, remember that I have been urging our agricultural and home papers to refuse to accept articles describing the cultivation of tobacco. The *Rural New-Yorker* agrees with me in this, and there may be some other agricultural papers; and it occurs to me just here that I may be omitting a good many clean monthlies and weeklies; and I wish, dear friends, you would help me when the editor of your home paper decides to refuse to accept advertisements of this class. Send me the name of that periodical, and I will make mention of it here; and especially should I like to get hold of the periodicals that are taking a stand against tobacco. Let us see how many editors there are who will "dare to be a Daniel," and, if necessary, "dare to stand alone." I am well aware that, in drawing the line on patent medicines, we rule out some that contain no alcohol whatever, and some others that are standard useful and beneficial remedies; but it is so hard to discriminate that we have, with the *Sunday School Times*, *Success*, and other periodicals, decided to refuse *all* medicine advertisements. By the way, is it not a little cheeky for some of these medicine men to declare their stuff is non-intoxicating? Whiskol, you will notice, is one of this kind, and yet according to the table it contains more than 28 per cent of alcohol. The world is wondering — the mothers are wondering—why children seem so greedy to get hold of drink. Bok suggests that the patent medicines taken by the mothers for "that tired feeling" lay the foundation for the craving for beer and alcoholic stimulants, even before the child is born. Now, the great strides that we American people are making in the cure of disease is in the way of prevention rather than of cure. We are heading off typhoid fever by giving people better water to drink; we are heading off consumption by giving the people better air to breathe; we are heading off a host of chronic diseases, not only by feeding our babies, but our older children, better food. May God help us in this conflict with Satan under the guise of some patent medicines, especially stimulating medicines. One of our trained nurses told me last winter that Peruna is whisky and morphine. This may not be true; but if so, think of it, you fathers and mothers. Give the average person a bottle containing both whisky and morphine, and tell him to take some whenever he feels bad, has the blues, or something of that sort! Is it a wonder we have idiots, lunatics, tramps, and criminals on our hands to take care of?

Perhaps I had better say in conclusion that may be Mr. Bok has made some mistake, for even a State Board of Chemists sometimes blunders. If so, GLEANINGS, at least, will be glad to be set right. Perhaps I should mention that, while Mr. Bok sets himself up on a rather high pedestal, at least in the article I have referred to, in almost the next number of the *Ladies' Home Journal* Emma E. Walker, M. D., while telling young ladies whether the use of candy is conducive to good health or not, utters the following:

> A most ingenious use to which paraffine has been put in America has been the manufacture of artificial honey-comb. It duplicates the natural comb remarkably well. The little cells are then filled with glucose slightly flavored to give the honey taste, and the artificial product is ready for use.

As soon as I got hold of it I wrote a remonstrance to Mr. Bok, and asked him to submit it to the lady doctor. In response the following has come to hand:

> *Dear Sir:*—It will give me pleasure to forward to Dr. Emma Walker your letter about the alleged use of paraffine in the manufacture of artificial honey-comb. If she should write again on this subject I dare say that she would be pleased to include in her article some correction of the misstatement which you say she has made. We thank you sincerely for calling our attention to the matter.
>
> Very truly yours,
> WM. V. ALEXANDER
> Philadelphia, Pa., June 1. Managing Editor.

FAKE WEATHER ALMANACS, ETC.

The letter below is sent out by the Chief of the U. S. Weather Bureau, and it seems to me it hits the spot exactly. The only regret is that the Weather Bureau did not take this matter in hand to the extent of sending out such a warning to the people generally, long ago, especially since some of our leading agricultural periodicals have been so foolish as to give credence to the idea that any man living is able to make any sensible prediction of what the weather will be a week or a month or a year ahead. Our older readers are well aware that I have been hammering away on this matter for years past, and that I have promptly refuted newspaper statements that the *Weather Bureau* states the weather will be so and so during the season. The Weather Bureau is able to give a pretty correct prediction as to what the weather will be for the ensuing 24 or possibly 48 hours ahead. Once in a while they venture to suggest what it may be for *three* days in advance; but no mortal has ever yet been able to tell *anything* about what the weather will be for a longer period than the above.

> *Sir:*—It is the opinion of the leading meteorologists of the world that public interests are injured by the publication of so-called long range weather-forecasts, especially by such predictions as relate to severe storms, floods, drouths, and other atmospheric phenomena of a dangerous or damaging character; and, the persistent efforts of certain men to foist their predictions upon the public, for personal gain, have reached such proportions that it is deemed advisable fairly and temperately to counteract the influence of those whom we believe to be preying upon the credulity of the public. Some of these men may be honest, and may, in their ignorance, attach undue importance to storms that may, accidentally, coincide in time of occurrence with certain relative positions of the planets, or with changes in the phases and positions of the moon, or with periods of increase or decrease in sun-spots, or apparent variations in the solar intensity. Men of this class find that for which they sincerely seek. They "mark when they hit, and never mark when they miss;" and the occurrence of a storm within the broad area of the United States, and, at times, within much broader areas, on or near the day for which they have predicted a storm, confirms, in their minds, the value of their system of prediction.
>
> They may believe that they have discovered a physical law or a meteorological principle that has not been revealed to astronomers, meteorologists, or any other class of scientific investigators; but the publication of predictions that, by reason of their absolute inaccuracy, are calculated to be positively injurious to agricultural, commercial, and other industrial interests, casts a serious doubt upon the honesty of their purpose, and upon their asserted disinterested devotion to the public welfare. Such publications bring the science of meteorology into disrepute, and can not, therefore, be made in response to a desire to advance that science along useful lines; and they retard the work of the honest investigator, through whose efforts, only, can gains be made in a fundamental knowledge of the causation of weather that will justify forecasts for a month or a season in advance.
>
> As a result of my personal verification of the work of long-range weather-forecasters, some of whom have so far gained the confidence of the rural press as to receive liberal compensation for their predictions, I am led to the conclusion that these forecasters knowingly perpetrate fraud, and do positive injury to the public at large. It is to be regretted that so many newspapers not only give space to these harmful predictions, but actually pay for them. Forecasts of this description can properly be classed with advertisements of quack medicines—they are both harmful in the extreme.
>
> I hope the time will come when it will be possible to forecast the weather for coming seasons, and to specify in what respect the coming month or season will conform to or depart from the weather that is common to the month or season; but that time has not yet arrived, and I believe that you will be best serving the public interests when, without indulging in personalities or mentioning any long-range forecaster by name, you teach the community you serve the limitations of weather-forecasting, and warn it against impostors. Your local press should, and doubtless will, co-operate with you in this endeavor.
>
> WILLIS L. MOORE,
> Chief U. S. Weather Bureau.
> Washington, D. C.

Temperance.

LOCAL OPTION IN ARIZONA.

On page 400, April 15, I asked for further particulars in regard to the Arizona law whereby it takes two temperance votes to offset one of the brewers. We have received the following letter in regard to the matter:

> *Friend Root:*—I enclose you a clipping from the *Searchlight*, and ask you to make mention of it again in your temperance talks, if you think it will be profitable. If friendly exchanges would note the fact of our unfair law it might help us to get the law amended the coming winter.

Mr. Andrew Kimball, the president of the Mormon church in this State, is the father of the local-option law, and was forced to make the "two-thirds majority" concession to get the law passed. As you probably know, Thatcher, Hubbard, Central, and Pima are almost entirely made up of Mormon people. Pima is said to have broken all records in local-option elections.

I rejoice with you that the great State of Ohio has taken such a brave step in this matter of prohibition, and I earnestly hope you will drive this ruinous evil out of your State.

Bees here are doing well. I have just finished extracting from 152 colonies and got 20 cases. I think we can ship two large cars this season.

Safford, Ariz., May 11. W. E. GLASSCOCK.

ARIZONA'S ROLL OF HONOR.

We have before referred to the results of the local-option contests in Arizona, and here call attention to a list of the districts recently voting on the saloon question, with the results of the same:

Safford No. 1—For prohibition, 109, against prohibition, 82; total, 191.

Thatcher No. 12—For prohibition, 116; against prohibition, 11; total, 127.

Hubbard No. 23—For prohibition, 11; against prohibition, 1; total 12.

Central No. 17—For prohibition, 29; against prohibition, 2; total, 31.

Pima No. 6—For prohibition, 102; against prohibition 1; total 103

Curtis No 13—For prohibition, 19; against prohibition, 16; total 35.

We again call attention to the unreasonableness of the Territorial law as shown by the fact that Safford, while giving 109 for prohibition and only 82 against it, was lost to the cause because of the requirement of a two-thirds majority to accomplish saloon banishment. In Curtis, also, the same is true. Our readers will notice the remarkable figures in the other districts, in two of which only one vote was registered against prohibition and in one only two. There are other places in Arizona which should be added to this roll of honor.

The above is certainly encouraging. If Arizona can do so much on the two-to-one rule, what could we not expect with a fair chance - say, letting the majority of the people decide whether they want saloons or not.

PROGRESS OF THE TEMPERANCE WORK IN TORONTO.

I clip the following from a letter from our good friend E. Grainger:

> We have had a victory for the temperance cause in the western suburb of the city. Toronto Junction, where they have carried an act similar to the one you refer to, and the saloons have been closed up after a desperate fight with the liquor-men.
>
> Toronto, Ont. E. GRAINGER.

HOFFMAN FRAMES DEFENDED.

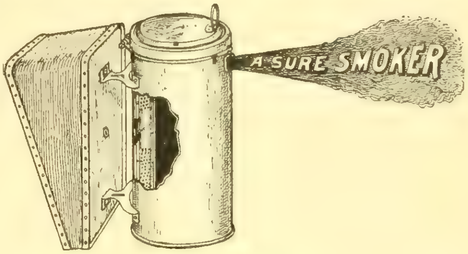
SINCE the discussion in regard to Hoffman frames has come up, there have not been wanting those who are willing to champion their merits. Under date of May 25 Mr. Geo. W. Brodbeck, Secretary of the National Bee-keepers' Association, writes:

> I note the exceptions to the Hoffman frame recently stated in GLEANINGS; and, so far as my experience goes, after the use of over 10,000, most of them will not hold good here in California.

Again, Mr. Harry Lathrop, the modern bee keeping poet, and an extensive bee-keeper, one who has written much for various bee-journals, says:

> I am handling Hoffman frames that I got of you seven or eight years ago. They work as well as ever. They shrink and wear off some, and that makes up for the bee glue that would be expected to make them too close-fitting.

DANZENBAKER
20th Century
SMOKER.



A SMOKER SURE FOR $1.00.

GUARANTEED TO SUIT, OR DOLLAR BACK.

The last in the field, combines the best feature of others, with special ones all its own.

It has a perforated draft-grate at the side that strengthens the fire-cup and holds a removable lining and packing in place, that keeps the fire-cup cool, adding to its durability. This lining can be replaced at a small cost.

The draft-hole is midway of the fire-cup, directly opposite the only opening in the bellows, from which the air is forced and deflected upward or downward, or both ways, as desired, to secure a dense or hot or cool volume of smoke, which is determined by the filling and lighting of the fuel.

It is superior in make-up and material.

It has no parts that can clog with soot.

It will continue to smoke from three to ten hours, in light work, until all the fuel is consumed.

It wins friends that willingly recommend it to others.

Full directions for use, and preparing special fuel for subduing bees and destroying the eggs and larvæ of the wax-moth, with each smoker.

PRICES:

$1.00 each; three for $2 70 when sent with other goods. By mail, each 25 cents extra.

ADDRESS

F. DANZENBAKER
Care The A. I. Root Co., Sec. 1, W. Annex, Hort'l. Bld.,
St. Louis, - Missouri.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

Last winter was a severe test on Bees,

But Quirin's Famous Leather-colored Italians

wintered on their summer stands, within a few miles of bleak Lake Erie. . . .

Queens now Ready to go by Return Mail.

Our new circular now ready to mail.

ADDRESS ALL ORDERS TO

Price of Queens Before July First.

	1	6	12
Select	$1 00	$5 00	$9 00
Tested	1 50	8 00	15 00
Select Tested	2 00	10 00	18 00
Breeders	4 00		
Straight Five-band Breeders	6 00		
Palestine Queens	2 00	10 00	18 00
Two-comb Nuclei, no queen..	2 50	14 00	25 10
Full Colony on eight frames..	6 00	30 00	
Four fr's brood, 4 fr's fdn....	5 00	25 00	

Special low prices on Queens and Nuclei in 50 and 100 Lots. Nuclei on L. or Danzenbaker frames.

Quirin-the-Queen-Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY . . . . . .

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200

Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1.50; select tested $2.50; breeders $4.00 to $7.00.
Illustrated price list free for the asking.

W. O. VICTOR,

Queen Specialist. **Wharton, Tex.**

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8.00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. Laws, Beeville, Texas.

Red Clover Italian Queens.

Fine Northern bred, originated from best long-tongued Red Clover breeders in United States; three-banded strain work on red clover, bred for business in full colonies under swarming influence; gentleness, honey-gathering, and wintering qualities are prime object. Untested, $1.00; six, $5.00; tested, $2.00; six, $10.00; select tested, $3.00. After July 1st deduct 25 per cent. Satisfaction guaranteed. Remit by money-order. **Isaac F. Miller, Knoxdale, Pa.**

MY GOLDEN BREEDER

gave me 400 pounds of honey last year. Her daughters are 75c each; $8 00 per dozen.

George W. Cook, - Spring Hill, Kans.

===Red-Clover and Italian Queens===

FOR SALE.

Untested queens, 75c; tested, $1.00; selected, $1.25; breeders, $2.50 to $5.00. All queens by return mail for 1904. Send for circular. **G. Routzahn, Biglerville, Pa.**

---HONEY QUEENS---

Golden and Leather-colored Italians, tested, $1.00; untested, 90 cts.; select tested, $1.50.

H. C. TRIESCH, Jr., DYER, ARK.

CARNIOLANS AND ITALIANS.

Untested Queen $1.00; Six for $5.00; Twelve for $9.00. Tested $1.50. Best Breeder $3.00. Imported $5.00.

Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

F. A. LOCKHART & CO.,
Lake George, - New York.

Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years. We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness.*

Italians.

Gentle, prolific, swarm very little, hustlers to work, and a red-clover strain.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

QUEENS! ATTENTION! QUEENS!

During 1904 we will raise and offer you our best queens. Untested, 75 c. each; $4.25 for 6; $8 00 for 12. Tested queens, $1.50 each; best breeders, $5 00 each. One, two, and three frame nuclei a specialty Ful colonies, and bees by the carload. Prompt attention to your orders, and safe arrival guaranteed. Satisfaction will be our constant aim. We breed Italians, Carniolans, Cyprians, and Holy Lands, in separate yards, 5 to 25 miles apart. Our stock can not be excelled in the world, as past records prove. New blood and the best to be had. Queens will be reared under the supervision of E. J. Atchley, a queen-breeder for 30 years. Write for catalog telling how to rear queens, and keep bees for profit. THE SOUTHLAND QUEEN, $1.00 per year. **The Jennie Atchley Co., Box 18, Beeville, Texas.**

Doolittle Says:

" Be very choice of this Breeder; if ever a Queen was worth $100, she is." Then we have Breeders from our strain that gave the big yields in '94, and which some of the largest bee-keepers in Cuba say can't be beat. They swarm but little and are **honey-getters.** We are breeding for **honey-gatherers** more than color. We cull our cells and queens, and **warrant** queens purely mated. Prices: Select untested, $1.00; select, $1.25, tested, $1.50; select, $2 00; breeders, $3.00, $4 00, and $5 00. Circulars free.

J. B. CASE, Port Orange, Florida.

Queens by Return Mail

We are now breeding from three distinct strains, viz., Imported or leather color, Root's long-tongued or red clover strain, and our old strain of white-banded yellow Italians, or albinos. :: :: ::

JUNE PRICES.

Untested, each........$1.00; half doz. $5.00; doz. $ 9.00
Warranted, each..... 1.15; half doz. 6 00; doz. 10.50
Tested, each.......... 1.50
Select tested, each.......... 2.00

We have also a full line of bee-keepers' supplies including The A. I. Root Company's goods . . .
Root's Sections and Weed's Foundation a Specialty.
Send for our 32-page illustrated catalog. . . . .

W. W. Cary & Son, Lyonsville, Mass.

Leather Colored Italians For Sale!

Strain took first premium Minnesota State Fair, 1901 and 1902. Ready May 1st. Eight or nine frame Langstroth hives, $5.00; ten frame, $6.00 each, f. o. b. Milaca.

W. R. ANSELL, Mille Lacs Apiaries,
MILACA, MINN.

THE DEMAND FOR

MOORE'S STRAIN OF ITALIANS

becomes greater each year. The following report shows the reason why:

EXCEL IN STORING CAPACITY.

B. S. Taylor, a large honey-producer of Perris, Cal., who sent me an order for 75 queens at one time, says: "I have a large apiary mostly of your stock, and I have never, in my 30 years' experience, seen so quiet and gentle bees to handle, and in storing capacity they excel anything I have ever had."

Untested queens, $1.00 each; six, $5.00; dozen, $9.00.
Select untested queens, $1.25 each; six, $6 00; dozen, $11.

Safe arrival and satisfaction guaranteed.
Descriptive circular free.

J. P. MOORE, Morgan, Pendleton Co., Key.

1904.

TRY J. W. TAYLOR'S record-breakers. They are three-banded leather-colored Italians. They have broken all records as honey-gatherers. I have made a specialty of queen-breeding for ten years to secure the best bees, and now I have them.

Untested, 75 cts., or $8.00 a dozen; tested, $1.25 each; select tested, $1.75; each. Breeders, the best, $4.00 each.

I have three yards, and can fill all orders by return mail. I guarantee safe arrival and satisfaction. J. E. Atchley says the finest queen he ever owned he bought from me. Try one. **J. W. TAYLOR, Ozan, Ark.**

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange bees for hives, violin, or cash. A. E. JOHNSTON, Dunnell, Minn.

WANTED.—To exchange L. Colton high-grade surveyor's compass. What have you?
F. W. VAN DE MARK, Mehan, Oklahoma.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Original articles instructing novices about queen-rearing for July Rural Bee-keeper.
W. H. PUTNAM, River Falls, Wis.

WANTED.—Parties in Georgia and Alabama having honey in one-pound packages for sale to address
JUDSON HEARD, Macon, Ga.

WANTED.—To exchange no-drip shipping-cases at 13 c for 24-lb.; 8 c for 12-lb.; 10 c for 4x5 size. 20-lb. for comb honey or cash. W. D. SOPER,
Jackson, Mich.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange catalog describing the best hive in existence, a double-walled hive for only 20c extra, for your name and address.
T. K. MASSIE, Tophet, W. Va.

WANTED.—To exchange 60-lb. cans for honey, cash, or offers. No. 1 at 40 cts. per case; No. 2 at 30 cts. G. L. BUCHANAN,
Hollidays Cove, W. Va.

WANTED.—Partner to go in with me and enlarge my bee business; fine opportunity for any one wishing to make a start in Cuba. R. M. MCMURDO,
Cauto, Santiago de Cuba.

FOR SALE.—150 bee-hives, nailed and painted, and in good condition. Frames L. size, 8 frames to the hive. Price 75 cents each. Also supers, arranged for the best system of hive ventilation known, with separators, and nailed and painted. Price 50 cents. Section foundation, 50 cents per pound. Will exchange for wax if desired.
F. H. MCFARLAND, Hyde Park, Vermont.

WANTED.—To exchange for bees, machine for making four-piece dovetailed section-boxes, two set of groovers and slicing-up saw, all on one mandrel; fine wood frame and table, with sliding gauge for slicing up; also pony planer, iron frame, nearly new, 12½-in. knife, with pressure-bar close to knife. For planing thin stuff none better; will plane stuff 3 in. thick.
J. R. TUNNICLIFF, Van Hornesville, N. Y.

Situations Wanted.

WANTED.—Position by a young woman where she can learn bee-keeping. Eastern States preferred. Reference Mr. J. H. M. Cook, 70 Cortlandt St., New York. EMMA V. HAGGERTY, 152 East End Ave.,
New York.

Addresses Wanted.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—Italian queens from Root's red clover stock; 65c each, or $7.00 per doz. Address
IVEY SEAWELL, Fort Deposit, Ala.

FOR SALE.—A few hundred cases of 60-lb. honey-cans, good as new, at about half their real value.
J. A. BUCHANAN & SONS, Hollidays Cove, W. Va.

FOR SALE.—Water Spaniel puppies, none better, $6 each, six months old. MYRON C. SAFFORD,
Salem, New York.

FOR SALE.—Damaged sections, $2.00 and $2.50 per M. Send two-cent stamp for samples.
LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

FOR SALE.—Second-hand 60-lb. cans, two in a case, in lots of ten, free from rust on the inside, and practically good as new, at 40c per case, f. o. b. Chicago.
B. WALKER, Clyde, Ill.

FOR SALE.—Five-gallon square tin can used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—57 New AE5-8 fr. Root's Dovetailed hives in flat for $55.00, or 10 for $10; also 10 new 2S 8-frame supers in flat for $3.50.
R. S. CHAPIN, Marion, Mich.

FOR SALE.—Italian bees with red-clover queen; 3-frame nucleus on Danz. frame, so you can make a start with Danz. hives, $3.50. Standard frames the same. Orders shipped immediately.
F. H. FARMER, 182 Friend St., Boston, Mass.

FOR SALE.—325 colonies of best strain of Italians in United States, in good location in Southwest Texas. Location, business, and outfit for sale at a bargain. Address for particulars C. WORTH,
Karnes City, Tex.

FOR SALE.—Fifty colonies of hybrid bees on 5¼x14¾ frames, ten frames to a section, two sections to a hive; full colonies with queen $3.50; ten-frame section $2.00, f. o. b. W. W. COOLIDGE,
Sun Prairie, Wis.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT,
Shenandoah, Page Co., Iowa.

FOR SALE.—Apiarian outfit of small house and acre of land with 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot. X Y Z, GLEANINGS

FOR SALE OR EXCHANGE.—One white tent 12x25; one 20x30, 7-ft. wall; new Belgium double-barrel shotgun, size 38 55; No. 12 Edison Standard phonograph, 36 records; trotting sulky; the best show out for tent, stage, or store, at a bargain, the "South Carolina Camel Boy," including two live monkeys, cost $100. Want honey, wax, foundation, extracting-combs, or honey-extractor. Write quick. R L TODD,
Millton, New Brunswick, Can

FOR SALE.—An apiary and farm, consisting of 120 acres good grazing land, and only fifteen minutes' walk from the city of Cardenas, and on the public road; having on said place 350 hives (American system), all necessary supplies to handle these, good house on grounds, numerous fruit-trees, plenty of shade for bees, thirty odd head of cattle raised on the place, among these six fine American milch cows (Holstein stock) selling nice little amount of milk daily, good-riding saddle-horse, ox-wagon with fine yoke oxen in fine condition, two good water wells, large pine-apple grove now producing, and with capacity to plant, if required, 60 000 henequen plants. Sell for cash, or on time with satisfactory guarrantee. Address
AMERICAN BEE HIVE, P. O. Box 44, Cardenas, Cuba.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee=keepers' Supplies.

Distributor of Root's goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey=boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee=smokers, Bee=veils, Pouder Honey=jars, and, in fact,

EVERYTHING USED BY BEE=KEEPERS.

Headquarters for the Danzenbaker Hive.

ITALIAN QUEEN BEES and NUCLEI. Strictly high grade, and a pleased Customer every time.

Untested Queens	$ 75
Tested "	1 00
Comb of Brood and Bees	1 25

All nuclei put up and shipped by myself, personally.

My Stock of Supplies

is fresh from the factory, and fully up-to-date in every detail. My sections are not dried out and they do not break in bending.

What They Say.

Winchester, Ind., May 10, 1904.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—The large order I sent you for supplies came the second day after I mailed the order, and every article was of the very best quality. I can say, with the greatest pleasure, that my business relations with you have been of an exceedingly pleasant nature. The hundreds of dollars' worth of supplies that I have bought of you were of the very finest material and style that I have ever seen, and the promptness and exactness with which you have filled my orders has made me many dollars because you have always sent me every article just as I ordered, and as prompt as railroad service could carry them to me. Wishing you continued success, I remain as ever, your friend and customer, C. O. YOST.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name on the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513=515 Massachusetts Ave., = INDIANAPOLIS, IND.

More Room

We now occupy the greatest floor space, and carry the largest stock of goods, that we ever did before. Our specialty is

Wholesale and Retail

Lewis' Goods

AT

Factory Prices.

Dovetailed hives, Wisconsin hives, Champion Chaff hives, Improved Langstroth Simplicity hives, and our new hive which we call the Acme hive. Thousands of pounds of comb foundation; millions of sections in about 30 different sizes and styles, and everything the bee-keeper needs.

Do not fail to find out all about the

ACME HIVE.

Hundreds of them already sold, this year. Catalogs and plenty of information free. Let us estimate on your order.

C. M. Scott & Co.,
1004 E. Washington St.,
Indianapolis, = Ind.

Do You Need Queens?

If so, you want none but the best. **Prolific Queens?**—they mean large colonies. **Good Workers?**—they mean full supers. We can fill your orders for such queens by return mail, from our choice strain of three band Italians, which are not excelled as honey-gatherers. : : :

Choice tested queens, $1.00 each; untested 75c; per dozen, $8.00. *Send for circular.*

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

Virginia Queens

Italian queens secured by a cross, and years of careful selection. From red-clover queens and Superior stock obtained from W. Z. Hutchinson. I can furnish large vigorous untested queens 75 cts.; after June 15th, 60 cts.; tested queens, $1.00; after June 15th, 75 cents.

Write for discount on large orders.

CHAS. KOEPPEN,
Fredericksburg, - Virginia.

BEE-KEEPERS' SUPPLIES FOR KANSAS

Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*

A. W. SWAN & CO. Centralia, Kan.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

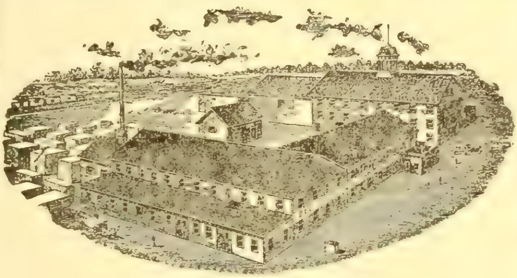
The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

I. J. Stringham, New York,

—Keeps in stock a complete line of—

Apiarian supplies

Colonies of Italian bees in new hive	$8.50
Three-frame nucleus colonies with Italian queen	3.75
Tested Italian queen	1.25
Untested queen	85
Silk-faced veil, best made	.40
Catalog	FREE

Apiaries--Glen Cove, L. I. Salesroom--105 Park Place, N. Y.

NOT IN THE TRUST.

The oldest bee-supply house in the East. Sells the BEST GOODS at former prices.

Send for Catalog.

J. H. M. COOK,

70 Cortlandt St., New York City.

Tested queens now ready by return mai

Pacific Coast Buyers

are directed to the announcement that

SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California,

carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundation, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added. This saves buyers $1.50 per 100 pounds in freight or 36c on each hive.

HAGEN'S

Comb Foundation Factory

(*WEED PROCESS*),

Is turning out a grade of foundation that is not sur passed by any made, and is guaranteed to give perfect satisfaction. A share of your trade is solicited. Wax worked up for bee-keepers also. In the market at all times for beeswax at the highest market price. Samples of foundation sent on request.

H. F. HAGEN,

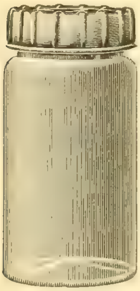
Denver, - - - Colorado.

601 High Street.

SPECIAL NOTICE

Special Notices By Our Business Manager.

NEW SIMPLEX HONEY-JAR.



We have found a new glass jar for one pound of honey, which we think surpasses any other style we ever offered. It has a glass top which screws on to the glass jar with a rubber gasket between. The joint is on a taper so that, the further you screw the cover on, the tighter it makes the joint. It can be sealed absolutely air-tight; has no metal to rust or corrode. It is about ¾ inch higher than the No. 25, which improves its appearance. We sell them at the same price as the No. 25, and have a carload in stock ready to fill orders. We first learned of this jar nearly a year ago, but have said nothing about it until we had the stock in hand ready to supply. We still have some No. 25 in stock for those who may prefer to continue with it We believe, however, the Simplex jar will take the place of the No 25.

EXTRACTED HONEY.

We keep on hand a large stock of extracted honey from different sources, and are prepared to supply at the prices shown below. The following flavors are usually in stock.

PRICES.—F. O. B MEDINA, CHICAGO, OR PHILADELPHIA

Kind.	In single five-gallon cans.	1 case of 2 five-gallon cans.	10 cases of 2 five-gallon cans.	In one-gallon screw-top cans.	Case of 6 or 10 one-gallon cans.
	per lb	per lb	per lb	per gal	per gal
White Clover	8½	8	7½	1 20	1 10
Basswood	8½	8	7½	1 20	1 10
Alfalfa	8½	8	7½	1 20	1 10
Orange	7	6½	6	1 10	1 00
Amber..........	6½	6	5½	1 00	90

PACKAGES.

By far the largest part of our honey comes put up in the 60-lb. square tin cans, two cans in a case. We also get some in kegs and barrels We agree to furnish it only in such packages as we happen to have. Unless you find price quoted for different packages, it is understood that we furnish only in 5-gallon and 1-gallon cans.

AIKEN HONEY-BAGS.

We did not include these bags in our catalog this year because we wanted to see them more generally tested in different sections of the country, and proven a satisfactory package everywhere before doing so. We are prepared to supply them, and have arranged for a 1-lb. size in addition to the four other sizes sold heretofore. We are now supplied with all sizes.

1-LB. SIZE, 3½x5½.

100	$ .65
500	3.00
1000	$5 50
5000 @	5.25

2-LB. SIZE, 5x7½.

100	$ .80
500	3 75
1000	7.00
5000 @	6.60

5-LB. SIZE, 7x10.

100	$ 1 20
500	5.50
1000	10 50
5000 @	10 00

3½-lb. SIZE, 6x9½.

100	$1.00
500	4.75
1000	8 75
5000 @	8.25

10-lb. SIZE, 10x10½.

100	$ 1 50
500	7.00
1000	13 50
5000 @	13 00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance. 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2 00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

Special Notices by A. I. Root.

HARDY CATALPA AS A FARM CROP.

This bulletin is put out by the Ohio Experiment Station, Wooster. It is full of pictures; and this hardy catalpa, without question, promises to be one of our best forest trees for growing valuable timber, not only for lumber for hives, but for fence-posts, railroad ties, and durable timber for any purpose. The bulletin gives a picture of a catalpa gate-post that has been in use for 70 years, and is good even yet. If you are interested in the matter, by all means send for Bulletin 149, as above.

USEFULNESS OF THE AMERICAN TOAD.

The above is the title of a very interesting farmers' bulletin, No. 196, put out by the Department of Agriculture. I have a pet toad in my greenhouse that I consider worth several dollars. He keeps down the ants that are trying to pasture aphides. and mealy bugs on the leaves of my exotic plants The toad consumes more ants by bulk than of any other insect. A toad is not very particular. He can take potato-beetles, gipsy moth, or any of these pests, without making a wry face Dr. Hodge has seen a toad snap up 86 common flies in less than ten minutes; and the best part of it is, the toad has a digestion that will take care of all the bugs and insects he can swallow from sundown till morning. This bulletin says if the toad gets after your bees, lift your hives a little higher, but do not kill the toad. It is too valuable.

ALFALFA IN THE NORTH.

A government bulletin has just been issued in regard to alfalfa seed, strongly emphasizing the importance of using nothing but the best. The price has recently advanced. and the temptation is quite great to use something that does not cost so much; but it is poor policy in many ways. You stand a greater chance of getting foul weeds started in your ground, and you get more good strong plants for your money—at least as a rule—when you buy the very best seed to be obtained. The matter is constantly assuming greater importance because farmers are beginning to find out that alfalfa can now be grown almost all over the North, but it requires more care to get a stand; but when a good stand is once secured, it will take care of itself for almost a lifetime In nearly every neighborhood and locality you will find somebody who is succeeding with alfalfa. A very valuable bulletin was put out about a year ago by our Ohio Experiment Station. The one I have just referred to, published by the Department of Agriculture, Washington, is entitled "Farmers' Bulletin No. 194." Address Secretary of Agriculture, Washington, D. C.

"Increase" is a little booklet by Swarthmore, tells how to make up winter losses with less labor, without breaking full stocks. Entirely new plan, 25c. Prospectus free. Address
E. L. Pratt,
SWARTHMORE, PA., U. S. A.

BEE-KEEPERS, let me sell you the best goods made. You will be pleased on receipt of them, and save money by ordering from me. My stock is all new and complete. I handle the G. B. Lewis Co and The A. I. Root Co. goods. Send for catalog. It is free.
W. J. McCARTY, Emmetsburg, Iowa.

1884 **PRICE LIST OF** 1904

Italian Queens and Bees

Untested Queens, each - - -	$ 75
Tested Queens, each - -	1 00
Select Tested Queens, each - -	2 00
Two-frame Nucleus (no queen), -	1 00
Three-frame Nucleus (no queen), - -	1 50
Four-frame Nucleus (no queen), -	2 00
Full Colony, eight-frame, (no queen) -	4 00

We are booking orders for Queens and Bees at the above prices.

We breed with scientific, intelligent methods from the best Imported and Long-tongue stock. Cheaper queens may be had elsewhere, but we make no effort to compete with the prices of the CHEAP-QUEEN men. Our stock is worth our price. You will be pleased with our stock and our prompt and careful attention to your orders. **We guarantee it.**

64-page Catalog of Supplies Free.

J. M. JENKINS,

WETUMPKA, - ALABAMA.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'

SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

FIFTY YEARS

Seven original inventions, and the bees have enabled bee-keepers to supply the world with the best cheap and abundant honey.

Rev. L. L. Langstroth's shallow-chamber movable-comb frames Inventor did not improve his invention.
T. F. Bingham, closed-end movable-comb frames. He improved his invention.
Baron von Hruschka, revolving honey-extractor. Inventor did not improve his invention.
J. Mehring indented comb foundation. Inventor did not improve his invention.
A. I. Root invented foundation rolls.
T. F .Bingham, uncapping-knife. Invention has never been improved.
T. F. Bingham, continuous direct-draft smoker. Inventor has twice improved his invention.

The bellows of the Bingham smokers has double leather, and strips of wood glued and nailed, forming its hinge,—does not slip or wabble. The metal part has a shield and a brass exhaust tube to direct the blast and protect the wood and hands from heat (*does not whistle*). The top has a cool wire handle and bent exhaust, to curve the smoke, catch the ashes and soot and fire (*a safe feature*). Bingham has made and sold thousands every year for 26 years, has never received a complaining letter, but hundreds of the most complimentary character.

Smokers are similar, but there are none like Bingham's.

Bingham has received all the bellows-smoker patents granted by the United States, four in all, but has never sold any patent rights. Bingham smokers burn any thing, and never go out, and last from 5 to 21 years.

Prices, by Mail.

Tin, 4-inch Smoke Engine	**$1.50**	Doctor, 3½-inch Smoker	**$1.10**
Conqueror, 3-inch **$1.00**; large, 2½-inch	**.90**	Little Wonder, 2 inch	**.65**

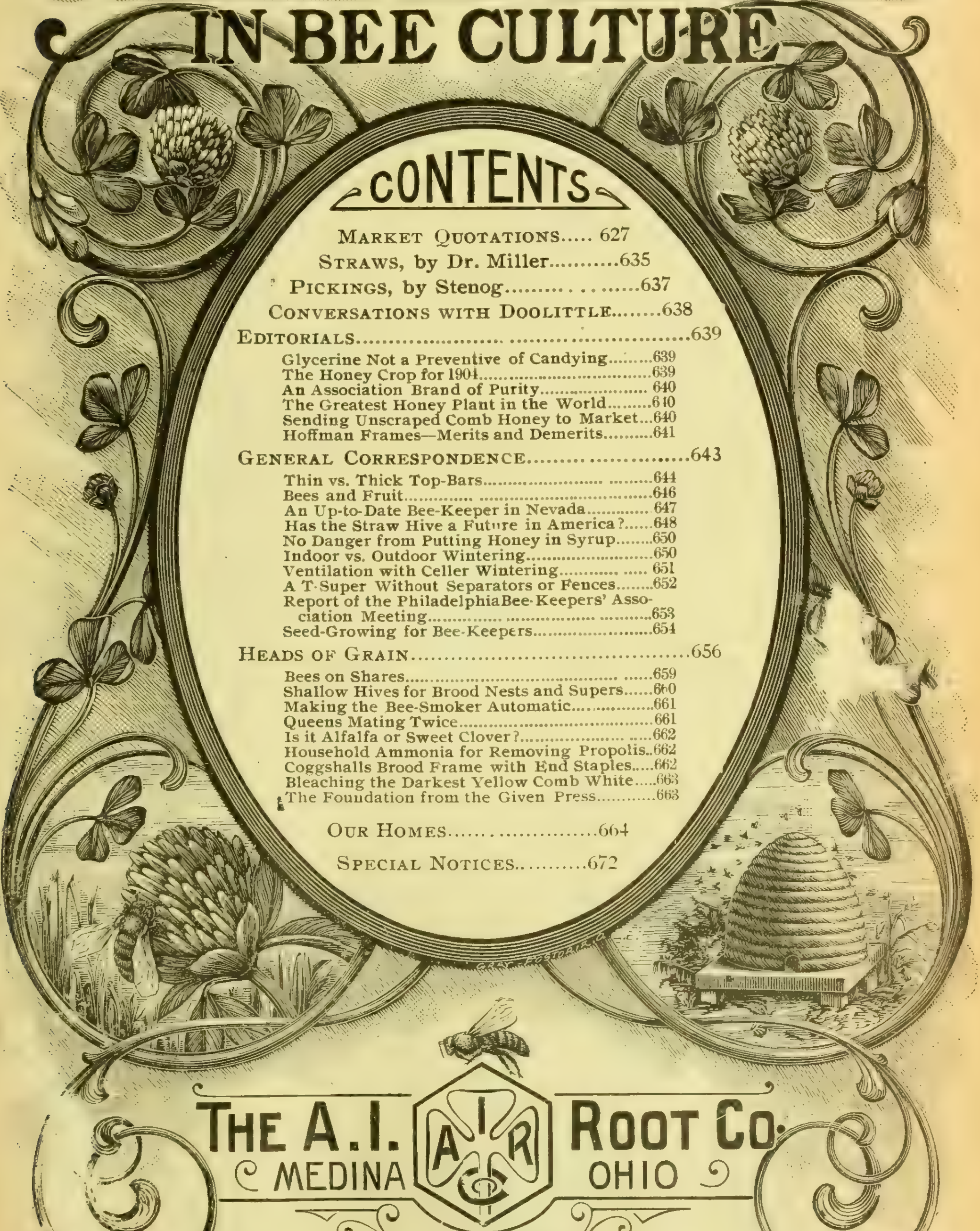
Copper of the three largest sizes, 50 cents more than tin. These are our regular prices. But we make a special which we charge 10 cents more for. Uncapping-knife....**80c**

——Thanking every one for 26 years of favors and respect,——

T. F. BINGHAM, - FARWELL, MICH.

Volume XXXII. JULY 1, 1904. Number 13

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

ENTERED AT THE POSTOFFICE, AT MEDINA, OHIO, AS SECOND-CLASS MATTER.

PROMPT **SHIPMENTS OUR SPECIALTY**

If you want your orders filled within 24 hours send them to us. We have the largest stock in Michigan, and can ship at once.

Beeswax wanted at highest market prices.

LEWIS C. & A. G. WOODMAN,
GRAND RAPIDS, MICH.

CAN SHIP TO-DAY.

¶I have the largest stock, and the best assortment I ever had at this time of year, and can fill your order the same day it is received. I have more Hives, Supers, Sections, and Foundation, Shipping-Cases, and every thing you may need than I can possibly sell this season.

¶But don't wait, send in your orders promptly, and they will be filled promptly.

YES, THEY ARE ROOT'S GOODS

AND SOLD AT ROOT'S PRICES.

¶If you have not my 36-page catalog, send for it, free. Beeswax wanted, either for cash or trade.

GEORGE E. HILTON,
FREMONT, MICH.

Hurry Up Orders

FOR

Hives, Sections, Foundation, etc.

The supplies you order this month you want "right away"---"as soon as possible." That is what we are doing for others, let us do it for you. :: :: ::

For Root's Goods in Michigan---In a Hurry.

M. H. HUNT & SON, BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Queens Now Ready to Supply by Return Mail; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above. **Prices for Untested, during June, one. 75; six, $4.00; twelve, $7.50.**

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A NO. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

NO. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

NO. 2.—Three-fourths of the total surface must be filled and sealed.

NO. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—It is just between seasons now with comb honey. No sales reported, and nothing doing. Our commission markets are at the height of the berry season; few sales made in extracted honey for manufacturing purposes. We quote fancy white extracted at 7c; amber, 6c. Beeswax is declining, 28c for best yellow. We are producers of honey and do not handle on commission.
WM. A. SELSER,
June 22. 10 Vine Street, Philadelphia, Pa.

TOLEDO.—The market on comb honey remains same as last quotation; no new honey is offered as yet; the old is pretty well cleaned up in this locality. Extra fancy, 14@15; No. 1, 13. No demand for amber. Extracted white clover, in barrels, 6½@7; in cans, 7½. Beeswax, 26@28.
June 20. GRIGGS BROS., Toledo, O.

CINCINNATI.—Since warm weather set in, hardly any sales of comb honey are made; what little there was sold was fancy white, and brought from 12½@13½. Extracted has a fair demand. I quote same as follows: Amber, in barrels, 5¼@5¾; in cans, ½c more; alfalfa, 6½; fancy white clover, 7½. Nice yellow beeswax, 30c.
C. H. W. WEBER,
June 18. 2146 Central Ave., Cincinnati, Ohio.

ST. LOUIS.—The honey market has not undergone any change since our last, and repeat quotations as follows: Fancy comb honey from 12@14; A No. 1, 11@12; No. 1, 10@11; No. 2, about 9; No. 3, from 7@8. Extracted, 5@5½ in cans, and 4@4½ in barrels. Dark and other inferior grades will bring less.
R. HARTMANN & CO.,
June 20. St. Louis, Mo.

CINCINNATI.—The demand for honey is slow for this season of the year, which is due to the vast quantities that were held over from last season, and the importation of Cuban honey. We quote amber in barrels and cans at 5¼@6½; white clover, 6½@8. Beeswax, 30.
THE FRED W. MUTH CO.,
June 15. 51 Walnut St., Cincinnati, Ohio

NEW YORK.—Very little demand for comb honey. Some trade for No. 1 and fancy white at from 12@13, while dark and amber are almost unsalable. Extracted is in fair demand, although prices are irregular. We quote from 5@6½ per lb., according to quality. Southern in barrels, at from 50@55 per gal. Beeswax is more plentiful and prices are gradually declining. We quote 28@29.
HILDRETH & SEGELKEN,
June 21. 265 Greenwich St., New York.

KANSAS CITY.—Fancy white comb honey, new stock, is selling at $3.25 per case; No. 1 stock, $3 00; amber, $2.75. Old extracted honey is very slow sale. Beeswax in good demand at 30c.
C. C. CLEMONS & CO.,
June 21. Kansas City, Mo.

SAN FRANCISCO.—New comb per lb., nominal. Extracted, water-white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Beeswax, 28@29.
ERNEST B. SCHAEFFLE,
June 12. Murphys, Cal.

FOR SALE.—Fancy white extracted honey, 7 to 8½c. per lb. Sample 10c.
I. J. STRINGHAM,
105 Park Place, New York City.

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.
G. W. WILSON, R. R. No. 1, Viola, Wis.

FOR SALE.—New crop fancy white extracted honey, in 60-lb. cans or 32-gal. barrels.
G. L. BUCHANAN, Holliday's Cove, W. Va.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & CO., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity.
R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED—Beeswax. We are paying 26c cash or 28 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York City, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
THE A. I. ROOT COMPANY, Medina, O.

STANDARD BRED QUEENS.
BUCKEYE STRAIN RED CLOVER.
GOLDEN ITALIANS. CARNIOLANS.
By Return Mail. Safe Arrival Guaranteed.

PRICES.	ONE	SIX	TWELVE
Untested	$0.75	$4.00	$7.50
Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select Tested	2.00	10.00	18.00

Select Breeders, each $3.00
Two-frame Nucleus and nice Queen 3.00

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about good wheels and good wagons that will save you a lot of work and make you a lot of money—the
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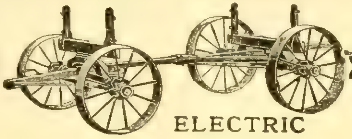

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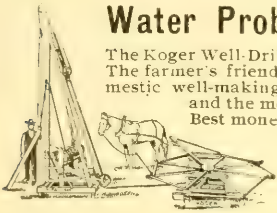

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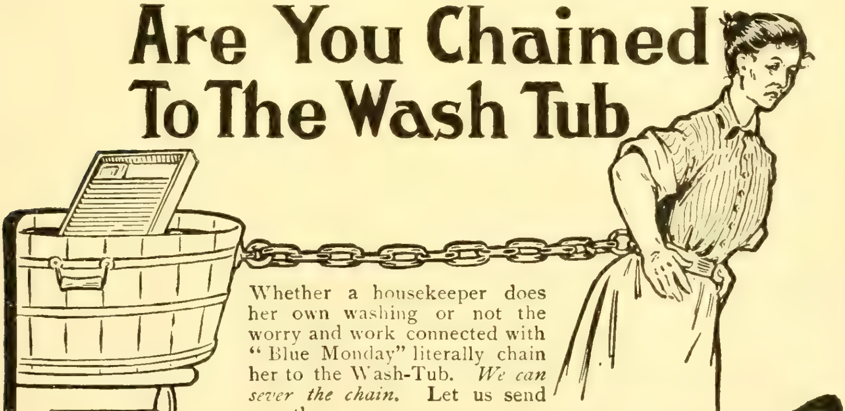
Are You Chained To The Wash Tub



Whether a housekeeper does her own washing or not the worry and work connected with "Blue Monday" literally chain her to the Wash-Tub. *We can sever the chain.* Let us send you the

"1900" Ball Bearing Family Washer

FREE TRIAL Freight prepaid. No money or promise of any kind is required. Use it for thirty days; then if you do not wish to purchase return it at our expense. ***We pay the Freight both ways.*** Unlike all other washers, the **"1900"** sends the water ***through*** the clothes and washes them absolutely clean ***in six minutes*** with no wear or tear on the garments or the operator. Perfectly adjusted Ball-Bearings do the same for it as for the bicycle—make it work with little effort.

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Sold everywhere. Free trial sample for 2-cent stamp to pay postage. Write for booklet "How to Shave."

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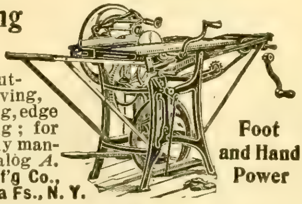

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For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
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The "MEND-A-RIP"
Does all kinds of Light and Heavy Stitching

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WILL SAVE THE PRICE OF ITSELF MANY TIMES A YEAR. A Perfect Hand Sewing Machine and Riveter combined

Can use heavy waxed end.

You can do your own repairing at any time. Write me for details of a complete repair outfit in a box. Write for particulars.
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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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To prevent the adulteration of honey.

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one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.

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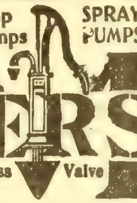

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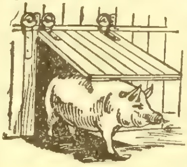

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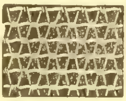

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Bee-keeping as a Business

is the title of a two-page editorial in the June Bee-keepers' Review. It does not go into details, but touches clearly and sharply upon the radical changes that many bee-keepers must make if they are to make money instead of simply struggling for an existence. The reading of this editorial may put ideas into your head that will lead you to success.

Send ten cents for this issue, and the ten cents may apply on any subscription sent in during the year.

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OUR stock-room was pretty badly smoked up during a fire in the power-house in which we're located Water damaged things a little too. . . . But the insurance companies made good on it. . . . We're going to give our customers the benefit of this.

400,000 SECTIONS SMOKED UP.

They were all crated, and only the edges are discolored. We'll let them go, while they last, for less than one-half. Crates hold 500. We won't break a crate. By the thousand, $2.25. By the crate, $1.15. Sections are 1½, 1¾, and 1⅞.

Smokers of every sort slightly discolored by smoke, ⅓ OFF.

A number of extractors were smoked up. A good scouring will fix them as good as new. They'll go for ⅓ OFF.

Many hives were smoked a little—they'll go for ⅓ OFF, while they last.

Better write to-day and be sure of some things.

MINNESOTA BEE-KEEPERS' SUPPLY CO.,
MINNEAPOLIS, - MINNESOTA.

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I SLAY BUGS
1880 1880
KILLS INSECTS, SAVES FOLIAGE.

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Sections, Dovetailed hives, Foundation, and all supplies **at Reduced Prices.** Send for list.

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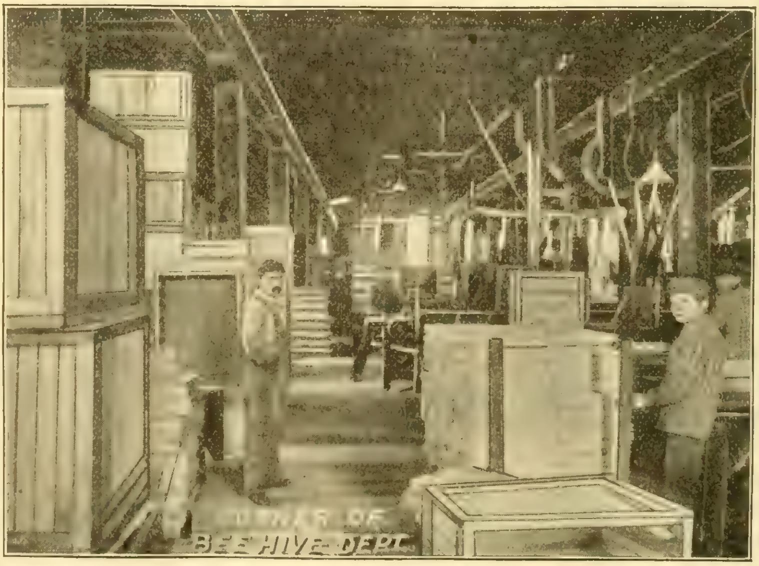


WATERTOWN
WIS.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

Vol. XXXII. JULY 1, 1904. No. 13

STRAY STRAWS

By Dr. C. C. MILLER.

SHALLOW extracting-combs are blamed for making bees swarm, in Mr. Doolittle's conversation, page 586. But don't the Dadants use such combs, and are they not notorious for the small amount of swarming they have?

WONDERFUL UNIFORMITY has been attained in making foundation. I kept accurate count of three 25-pound boxes of thin super foundation, and they filled respectively the following numbers of sections: 2716, 2744, 2736.

FRIEND GREINER, instead of using gum arabic as you describe, page 598, you might try dextrin, with a few drops of carbolic acid to keep it from souring. Gum arabic costs more than three times as much as dextrin, and seems no better.

BOTTOM STARTERS in sections should be ⅝ of an inch. If too small it is difficult, if not impossible, to put them in with a Daisy foundation-fastener, and the bees are more likely to dig them down. If too large they are more likely to topple over.

COOL DAYS in June have prevailed here as well as at Medina, and I've been thankful for it. It has held back the clover without hindering the building-up of colonies depleted by the dreadful spring dwindling. [We are still having cool days, and an abundance of clover is out. We are getting to be a little fearful, however, that this cool weather may hang on long enough so that the clover will finally go out of bloom.—ED.]

THE *Review* has an exquisite picture of orange-blossoms, and an article about them by W. S. Hart, both of them loaned to the *Review* by Editor H. E. Hill *before* their appearance in the *American Bee-keeper*. I always knew Harry was a nice fellow, and that act is confirmatory evidence of the fine spirit that is in him. [I wish to indorse both opinions expressed — that the picture of the orange-blossoms in the *Review* is "exquisite," and that Harry Hill is a "nice fellow."—ED.]

"TOLD YOU SO," Mr. Editor. Said I expected you to use a set of wires in cutting candy bricks, p. 323, and was told "three or four wires could not be used." Now you've grown so much that you can use "four or five wires," p. 589. [When I said we could not use more than one wire I had reference to the plan that we were then considering—namely, that of pulling a wire or wires through the mass by hand; but now that we have a beautifully constructed machine that works with precision, we have new conditions, making possible the use of more than one wire.—ED.]

S. T. PETTIT excites admiration by the careful way in which he goes to work to prove that more brace-combs are built between thick than thin top-bars, p. 595. But if ⅞ gives more brace-combs than ⅝ — and ⅝ seems to be as thin as he thinks practicable — there is still the real advantage in favor of the thicker bar that the greater distance of sections from the brood-combs makes the bees carry fewer bits of comb from the brood-chamber to darken the cappings of the sections. [You will find this discussion continued further by Mr. Pettit and myself in this issue.—ED.]

"THE CASE mentioned is probably one of paralysis and not of dysentery. If the former, it will have been cured by this time; if the latter, spraying powdered sulphur on the bees at night . . . would probably do much to effect a cure," page 605. Lest some beginner should get all tangled up in that, I will say that the order of the words "paralysis" and "dysentery" should be reversed. It's dysentery that gets well of itself when bees have a flight, and paralysis is the thing that sulphur cures. [Thanks for the correction, doctor. The types were badly reversed.—ED.]

TONS OF HONEY called "Orange-blossom Honey" is shipped each year from Florida, and it appears that it is a fraud on the public. W. S. Hart says in *American Bee-keeper* that this honey all comes from outside the orange districts, and that not a barrel of *pure* orange-blossom honey was ever shipped out of the State. [If there are bee-keepers who are knowingly shipping honey under the catchy brand of "orange-blossom" when it is something else, their names should be made public, providing, of course, they will not discontinue the practice. Perhaps the mere mention of the matter in a general way will reach the proper parties.—Ed.]

"The scheme of lengthening the top-bar by cutting out the rabbet, and nailing a cleat on the end of a hive," p. 609, if I am not mistaken, is exactly the way movable-comb hives were first made. [You are correct, that Langstroth was the first to make a cut-out rabbet and hive-cleat clear across. I find that, in one of his early works, dated 1857, is a drawing where the rabbet was entirely cut out, the same as is illustrated on page 609. I have just consulted our patent-files, and find in the original L. patent, dated Oct. 5, 1852, that the form of the rabbet is not clearly shown; but the drawing gives the impression that the rabbet first used was the same as we are now using. If this is the case, then Mr. Langstroth subsequently cut the rabbet out entirely, lengthening the projection of the top-bar. This only goes to show how nearly Langstroth was right in so many of his conclusions. We have had instances of it before so repeatedly that we can only marvel at the wonderful perception of the man whereby he could discriminate between the best and the mediocre.—Ed.]

I've just been transferring into Miller frames combs from various other frames, and I marked one as of special interest. It's one I bought of Adam Grimm. I don't know how old it is, but Mr. Grimm has been dead 28 years, and I don't know how many years before his death I bought the comb. To look at it you would hardly notice it as a very old comb. [So far I have yet to see what I consider good proof that a comb more than 10 or 25 years old will rear smaller bees than a comb one year old. Nature certainly would not make such a fearful mistake. She is always in harmony with herself; and the presumption is that, if the cells do grow smaller from cast-off bowel-skins, or cocoons, the bees will remove them.

One is apt to be deceived about the size of his bees. A customer recently wrote us, stating that he wished to get some foundation for his bees that was 4½ cells to the inch, because the bees were larger than usual. I somewhat questioned the statement, and finally asked him to send me some bees in a mailing-cage so that we might measure them with a micrometer that would indicate thousandths of an inch. When the bees arrived they looked larger than common; but an actual micrometer test showed that, in every way we measured them, they were about the size of our regular stock here at Medina. A careful examination showed that the abdomens were slightly flatter and correspondingly wider, giving the whole bee the appearance of being larger. In the same way one might jump to the conclusion that his bees were small, and, if reared in old comb, reason that it was responsible for their smallness, when, in fact, they were not small.—Ed.]

A. I. Root, that's wonderfully interesting reading on pages 610 — 612. Keep up the fight; you're doing perhaps more than you know toward making some of the religious papers behave decently in their advertising. [A religious paper that inserts doubtful or objectionable advertisements—especially those of the "get-rich-quick" kind—can not help weakening its influence on its editorial pages. When a paper is struggling for existence, a big cash offer of whole pages of space is very tempting; and the presumption is that some of these religious editorial leaders have a little bit of the old Adam left in them, in that the almighty dollar has not entirely lost its glitter. On the other hand, it is very easy for a large journal with an immense circulation to discriminate, because it would be impossible to insert all the advertising that is offered it, and therefore it can select only the best.

The *Ladies' Home Journal*, with its immense circulation — immense because its pages are clean, can do this. It has certainly set *some* of our religious publications to thinking along the line of practicing more what they preach.—Ed.]

"Location" is a thing laughed at now and then; but, all the same, it keeps right on making serious differences as to the way things pan out. There's that plan given by Mr. Doolittle, p. 587, whereby three colonies are made from two with no danger of swarming from either. Mr. Doolittle is a close observer, and one who is careful of his statements; and when he says he has tried a thing for "over 25 years, and it has always proved successful," you may bank on it as being reliable — for his locality. For many other localities, mine for example, it wouldn't work. Take "any populous colony which you have reason to think may swarm in a few days," and get the work "all done about three to eight days before your expected honey-flow." In this locality, three to eight days before the honey-flow you don't find colonies thinking about swarming. Again: "The removed colony is in perfect condition, less the field-bees which have been drawn off by its removal in just the right time to stop all idea of swarming for the season." In this locality, a colony removed to a new location before the honey-flow would merely have its swarming delayed, but would be just about as certain to swarm as if not removed. [In this locality swarming is apt to take place a little prior to the honey-flow — that is, a little prior to the real onrush of nectar; then it lets up a little. If there is any one thing that varies according to locality it is swarming. And then it varies also according to the season. Here, for example, no honey has been coming in except just enough to supply the demands for brood-rearing. We have nothing but nuclei in our yards, for the reason that there has been such a heavy demand for bees we have had to draw on all of our strong colonies as well as weak ones. Of swarming we have had an unusual amount when conditions of weather, of the colonies, and the honey-flow seemed to be all against it.

The other day we had one swarm cluster a few minutes; and, before we could hive it, it went over the 50-foot evergreens, then struck out in a bee-line directly northwest. Heretofore our swarms have been more accommodating, and we have been in the habit of taking our time to hive them. This swarm could have been headed off if we had had ready a spray-pump with a pail of water; for I have proved personally that I can drive a swarm in the air like a flock of sheep, and finally force it to settle again. —Ed]

Pickings from Our Neighbor's Fields
By
"Stenog."

The *Canadian Bee Journal* suggests that combs which have been gnawed by mice can be made good by cutting out the torn part with the top of a tin can, biscuit fashion, then cutting out a whole piece from another comb and putting it in the place of the piece removed. The bees will do the rest.

◆

Mr. Titoff has just pointed out to me a passage in a Bohemian bee-journal, showing that the number of colonies of bees in the kingdom of Servia in 1859 was 50,200; in 1866, 106,000; in 1890, 124,600; in 1900, 172,400. That is a remarkable increase for so small a country—only half the size of Ohio. The Bohemians call a hive an "ul." Some might see a strange coincidence between this sudden advance in prosperity and the cessation of Turkish rule in that turbulent country.

◆

There's no doubt that the sale of comb honey suffers at both ends of the route — in the hands of the producer and in the store of the retailer in the villages and cities. On the 19th of June I was in a hamlet in the western part of Ohio, and while there I had occasion to stop in front of a grocery, where I saw some comb honey in the window. As it was Sunday, the store was, of course, closed. There were five sections standing on a little board, entirely uncovered, with the edges toward the window. The sections were badly stained or else ingeniously decorated, for they somewhat resembled a county map of Illinois. Right here was the fault of the bee-keeper, for he could have easily scraped the wood so as to show its natural color at least, and perhaps have removed some of the marks of the buzz-saw. The honey itself could not be seen except on the right side of the right section. The appearance of that side was fine — it could have been graded as "Fancy" without stretching the truth. It was as white as honey ever is; the cells were filled to the wood, and the surface was as flat as the traditional pancake. I have no doubt the sections were all like this one; but the part that first met the public eye was repellent — that dirty wood; and, worse still, flies were having a premature celebration of the Fourth all over it; and what business has a fly on food, anyhow? That grocer should have fixed those sections up in more presentable shape — trimmed their edges with some colored paper, and put them in a glass case so the surface of the honey could be seen from the outside, and thus keep all the flies away. Here, from beginning to end, every condition for the sale of such or any goods was violated. I greatly longed to read these lines to that grocer, but he was away. It must not be supposed that he was a sinner in this respect above all grocers, for, take it the country over, this state of affairs will be found in too many stores. There is no article of human food that deserves to be presented in more attractive form, and kept more spotlessly clean, than comb honey. Further, why should a man who is in business to make a living by selling things stand so exactly in his own light, when it would be just as easy and far more pleasant to present his goods as if they had just come out of the bandbox instead of some repulsive place?

◆

BRITISH BEE JOURNAL.

The editor cites the case of a Frenchman who sowed a field with buckwheat, half of which received a good dressing of farmyard manure, and the other half was dressed with lime. On the first, not a bee was to be seen when the plants flowered; whereas on the second they were flying in thousands. There is no doubt that lime in the soil is a great agency in inducing a flow of nectar.

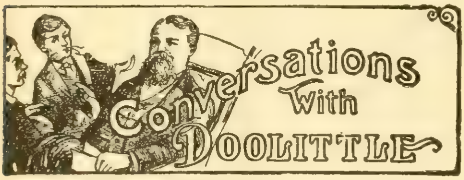
◆

In the French-speaking cantons of Switzerland, 264 bee-keepers insured 4198 hives of bees. The cost of insurance was about a cent apiece. Every bee-keeper is expected to make a correct return of the number of his hives so that he may be correctly assessed.

◆

An old English bee-keeper expressed some doubt as to the large yields per colony reported in some journals. A writer in Mr. Cowan's journal replies, "In Argentina, average takes of 330 to 550 lbs. per hive are common. One American produced 112,000 lbs. of surplus last year, 22,000 lbs.

of it being comb honey. Another apiarist has 700 colonies in one location in one yard. One State can turn out 8,000,000 lbs. of honey. Several individual bee-keepers possess over 3000 stocks."



TIME WHEN YOUNG QUEENS BEGIN TO LAY.

"My name is C. W. Babcock, and I came to have a little talk with G. M. Doolittle. Is this he?"

"That is the name my parents gave me. What can I do for you?"

"It is like this: I had lots of trouble last year by young queens turning up missing along in August, or, at least, that was the time I found that many of my colonies which had swarmed were without queens. What I wish to know is, how long a time must elapse between the time the first or prime swarm issues from the parent colony, and the time the young queen begins to lay."

"In your question we have something which is very often overlooked by very many bee-keepers, if I am to judge by the many letters I get, telling of trouble similar to yours, and colonies are allowed to go without queens till laying workers appear, or the colony dwindles down to where robbers take away all the honey the hive contains, and then the owners find out something is wrong, when it is too late to remedy affairs."

"That describes me, C. W. Babcock, exactly, and I want you to tell me how to avoid this state of affairs."

"As a rule, the time from the issuing of the first swarm to the time the first young queen emerges from her cell is seven days."

"Excuse me; but I must ask some questions as you go along, in order that thick-headed C. W. Babcock can understand. What are the exceptions to this rule?"

"If the swarm issues before the sealing of the first queen-cells, then it may be from eight to sixteen days before the young queen emerges, just according to how far advanced the embryo queens were at the time of the issuing of the swarm. But the rule is that the first swarm comes with the sealing of the first queen-cells."

"I see. That makes it plain."

"After the young queen emerges, if after-swarming is allowed it will be all the way from four to eight days before a young queen becomes established in the hive over her rivals, just according to how the bees treat the young queens which are in their cells after the first one emerges."

"What do the bees have to do with it?"

"If after-swarming is to be allowed, then the bees cluster in little knots about each queen-cell, to keep the emerged queen from killing her rival sisters. This causes an after-swarm to issue two to three days later; and if the bees still cluster the cells after letting another young queen out, another after-swarm issues, and so on till they conclude to swarm no more, when all but one young queen is killed, and the living one established in the hive."

"Well, that is something I never understood before."

"The queen, once established, will fly out to meet the drones when from five to eight days old; and as a queen may not be more than a day or two old when established, it may be five or six days afterward before she mates. Then there is a period of from two to three days after mating before the queen begins to lay."

"Then we should have seven days in the cell, eight days before flying out, and three days after flying out, or eighteen days from the time of issuing of first swarm till the young queen should be laying?"

"That would be about right where there was no after-swarming; but where there was, there would be five or six days there to add, so that, where after-swarming is allowed, it will often be from 22 to 24 days before the queen commences to lay."

"Yes, I see."

"Then should you look to see if any queen was laying at about the time she first commenced, the eggs would be so scattering that you might make a careful search of nearly all the combs before you see these few eggs, as they are so few and far between that it will bother you to find them; hence I always consider it a paying policy to wait 26 to 28 days, at which time young larvæ should begin to appear, which, together with the eggs in several combs, tells you, generally, upon the lifting of the first center comb of the hive, that the young queen is there all right."

"Yes, I see. And I now see, also, that, in failing to make any such examination, I was in ignorance in this matter, till, should the queen fail in laying, it was too late. But what do you do where you do not find eggs or larvæ when looking 28 days after the first swarm issued?"

"If no eggs or larvæ are found, a frame of brood should be immediately given, when you will look again in two days to see if queen-cells are being started. If so, then the colony should be given a laying queen at once; or, if this is impossible, two or three frames of brood should be given them at once."

"Why don't you give a laying queen as soon as you ascertain there is no brood in the hive?"

"Because I am not yet sure they are queenless. They may have a crippled queen, one that could not go out to meet the drone, or something they were tolerating as a queen, in which case they would kill every queen I tried to introduce."

"Then the giving of the brood is to find out for certain whether they are queenless?"

"Yes, mainly. And then it strengthens the colony later on also."

"Yes, I see. But why do you give the three frames of brood if you can not give a laying queen as soon as you find out the colony is queenless?"

"Because the bees now in the hive will dwindle to where they will be of little value before any young bees will emerge from the eggs from a queen they may raise from the one frame of brood given to test the matter; for it will take them 12 to 14 days before the young queen would emerge, 10 days to the time of her laying, and 21 days before her bees would emerge. In other words, it would be from 42 to 45 days from the time the brood was given, or about 70 days after the old queen left the hive with the first swarm before any young bees would come from a queen raised from the brood given, and by that time the colony would be very nearly in the condition you and others find them when you pay no attention to these things."

"Yes, I see now. You are making this very plain. But be patient just a little longer with me. Suppose after-swarming is not allowed—what then?"

"Then we have 7 days to the time the first young queen emerges from her cell, 7 days to the time she flies to meet the drone, and 3 days to the time she begins to lay, this making 17 days as the shortest time any young queen is likely to be found laying from the time any prime swarm issues. Then I would wait three or four days more till eggs and larvæ might become abundant in the combs, so I could expect to ascertain what I wish on lifting only one or two combs. My practice is to look for eggs and larvæ on the 23d day from time of swarming, when no after-swarms are allowed, or on the 27th day when such swarming is allowed."

"Do you always look thus?"

"Not of late years, as years of looking at the way bees act at the entrance and in the sections has enabled me to tell at a glance, along about the dates named, whether the colonies have a laying queen or not. But you will need the knowledge which looking gives at first, to guide you."

"Please explain a little more fully."

"When by looking you find a colony that does not have a laying queen the 25th day after the first swarm issued, close the hive without giving any brood; just watch the bees in their actions at the entrance for a day or two, and compare their actions with one you know has a queen that has been laying about three days. Then look at the work or non-work going on in the sections of the two hives; and if you are a careful observer you will ever afterward be pretty sure regarding this matter without opening a hive, and can, to your satisfaction, diagnose what is going on with any colony from outside appearances."

Editorial
By E.R. Root.

Bee-keepers who produce clover and basswood should not forget that, the earlier they can get their crop on the market, the better prices they will probably secure.

GLYCERINE NOT A PREVENTIVE OF CANDYING.

Our readers will remember that we have been conducting some experiments, putting in 1, 2, and 5 per cent proportions of glycerine in order to prevent candying. The one per cent failed to accomplish its object; but during the first two months the 2 and 5 per cent seemed to keep the honey clear. Within the last few days I find that *all* the glycerine samples have candied, proving that glycerine does not begin to compare with the plan of heating honey and sealing while hot. If our experiments prove any thing I think we may conclude that glycerine for the prevention of candying is not to be relied upon.

THE HONEY CROP IN THE CLOVER AND BASSWOOD BELT FOR 1904.

At present it is impossible to offer any sort of prediction. The season is late, and the weather has been cool — too cool for the proper flow of nectar. Reports received up to this time have been somewhat discouraging so far as the amount of nectar secreted is concerned, but encouraging as to the amount of white clover in bloom, and more encouraging still that there will probably be a yield as soon as the weather warms up. We have had two or three days of warm weather, and our own bees are beginning to go to the fields. During the past few days they have been working from hand to mouth. The ground is moist in most localities near the lakes, and the frequent rains have made a good lot of vigorous plants of clover.

We request our subscribers everywhere, outside of and in the clover belt, to send in postal-card reports of two or three sentences — don't make them longer — relative to the condition of the honey-flow, and the prospects of a crop of clover or basswood. Don't — *don't* — send long letters about the season, as we can't wade through them. Those received will be set aside for the postals. We will summarize the reports, and give our readers the benefit. It is very important to know what the crop will be, in order to determine something about prices; for clover and basswood are the most important factors in determining the price of comb honey in the great centers. Therefore, dear readers, it means dollars to you to help us in determining what the crop will be. Whatever the yield may be, heavy winter losses will have a strong tendency to cut down the total output, and probably will result in stiffening prices of new honey, even in the event of a good yield.

AN ASSOCIATION BRAND OF PURITY.

Some years ago Jamaica honey was put on the European markets, where it brought a very low price. Later on, the progressive bee-keepers of that island formed an association and put their brand on all the honey put out by them, and, presto! the price nearly doubled.

In our issue for June 1, p. 536, I suggested the feasibility of the National Bee-keepers' Association attaching its own brand of purity to the honey put out by its members.

I am firmly convinced that something of this kind ought to be done, then there will be an additional incentive for bee-keepers to join the Association. I am not so sure but the National ought to have in two or three of our great centers of trade some one appointed to receive consignments of honey from its members, and dispose of it at a nominal commission, say 5 per cent, the commission to go to the Association to defray the expense of a salaried official to receive the honey. This same official might affix the National brand of purity to the honey. The general public would assume that all honey bearing the brand of a national body of honey-producers would necessarily be pure and genuine bee honey.

THE GREATEST HONEY-PLANT OR TREE IN THE WORLD; BEE-KEEPING IN THE WEST INDIES.

A few years ago we used to say that basswood, for a given acreage, would yield more honey than any other tree or plant known; but from the best evidence in hand it is apparent that the logwood of Jamaica, British Honduras, and Hayti, will excel it. It is the most remarkable and perhaps heaviest nectar-bearing source known in the world. It comes on early in the holidays, yielding honey heavily clear on through January. The bee-keepers of Jamaica think nothing of securing averages anywhere from 100 to 200 lbs. per colony from it.

In point of color the honey is equal to any thing produced in the world. The flavor is mild, and if our tastes were educated to it we should pronounce it the equal of any thing produced in this country. It does not as yet compete with the American product, owing to the duty. The great bulk of it is shipped to England and other portions of Europe.

Bee-keeping in the West Indies, in a modern way, has only just begun. While the United States ranks first in the amount of honey produced, and the number of bee-keepers, it would not be at all surprising to me to learn that Cuba and the rest of the West Indies will be able in time to show up a larger aggregate tonnage per season. If, however, all deserts of our great West should be made to blossom, and to bless man and beast with the immense acreages of alfalfa as *some* of the deserts have, we shall give our West India neighbors a long and hard race.

THE FOLLY OF SENDING COMB HONEY TO MARKET UNSCRAPED AND UNGRADED; A GOOD-NATURED SCOLD.

What I am about to say now is not intended for bee-keepers who scrape and grade their comb honey, and put it up in clean new shipping-cases before sending to market. All such, to save time, may skip this, as "the shoe won't fit;" but the other class — those who are too indifferent or ignorant, or are too something, of the principles of making sales—should read this carefully; and when I am addressing this class I am well aware that I am speaking to the great majority of comb-honey producers; for it is indeed a fact that the great bulk of the comb honey that goes to market is not scraped, or if scraped it is improperly graded, if graded at all; or it may be scraped, but injured in appearance by being put in badly soiled shipping-cases, or, worse still, home-made cases. I have been through a number of commission houses, and have looked over the lots of honey that have been received. I have seen every shipment that has come to Medina; and to see the ordinary honey that is shipped to market, which otherwise might have been No. 1 and "Fancy," all mixed up in the cases—cases soiled, sections unscraped—well, it is enough to make one's heart ache. Then the producer of such honey, when he gets his returns, complains because they are below the market as quoted in the journals; and he thinks his commission man is dishonest, when the fact is the whole trouble is with himself. If he had taken a day or two to scrape and properly grade the honey, he could have earned anywhere from $25 to $100 a day in the larger returns secured for that same honey. A little No. 2 or off-grade honey put in with No. 1 and "Fancy" puts the whole caseful down to the price of No. 2. We have received several lots of such honey, and, rather than make poor returns, we have gone to the expense of regrading and scraping, selling the "Fancy" at one price, the best the market affords, the No. 1 in another, and the No. 2 in still another. Of course, we charged the producer for the time expended; but in doing so we have earned him good money. Where we buy this mixed honey outright, of course we pay a low figure for it, then grade and scrape and sometimes recase, with the result that we make a good margin on our investment. But should the buyer profit by the negligence, carelessness, and indifference of the producer? It takes experience and skill to get comb honey, and a good bit of it sometimes, I think. It takes but just a little more of that same skill to put that honey, when once secured, in good marketable shape where it will bring the best the market affords. But this is not all of it. Besides securing the best prices, the producer will usually get *prompt returns*. No. 1 and "Fancy" sell, as a rule, with little or no delay, where mixed and ungraded goods are a drug on the market; and the poor bee-keeper waits months, sometimes, before he gets returns; then when he does get them his honey has to be sold at a sacrifice, because at the time of the sale it is leaking, possibly candied, and the actual net return is only a half or a fourth what it would have brought if the honey had been scraped and graded.

Sometimes we get some beautiful fancy honey put up in second-hand cases, or cases that are soiled and dirty, making the whole lot look poor. If they were new cases, but simply soiled, a small piece of sandpaper on a block of wood will make them look almost new in two minutes' time; but if the cases are second-hand, and roughly sawn —well, there is nothing to do but to recase. Commission men say, and our own experience goes to corroborate it, that a good case well made, carefully nailed, *and clean*, will make the honey bring enough more to pay for three or four good cases, where, if it is a poor one, it knocks the price down on the whole consignment, no matter how well it may be scraped and graded. In saying this, I may be accused of "grinding our own ax," because, forsooth, we make and sell shipping-cases, but that is not the motive. But it does hurt our business when bee-keepers fail to get good prices, and honey is a drug on the market.

But this is not all. No matter how much honey may be properly graded and scraped, if it is left on the hive till it is travel-stained it is liable to be lumped off as No. 2. Of course, we bee-keepers know that honey that has been on the hive for some time after it has been gathered acquires a richness that it will not have if taken off at once. But that is not the point. The public demands, and will pay a better price for clean white goods than it will for soiled and dirty honey that possibly may have a better flavor; for of this fact the public knows nothing, and it therefore has no weight. People are in the habit of buying by sight; and if the goods do not *look* as good as the best they do not want them.

I tell you, brother bee-keepers, and I say it with all kindness, if you but *knew* how much good money you are losing sometimes, under the delusion that it does not pay to scrape or grade, you would reform your ways very soon. Pick out an honest commission house or honey-buyer, then follow his suggestions. Do not imagine that you know more about it than he does as to what the public wants and will pay for.

And, again, do not send your No. 2 and off grades to market — better by far sell around home, where you can explain that your travel-stained honey is just as good as or even better than the "Fancy white" which you ship to the city. If the sections are poorly filled out and unscraped you will probably get a better price by cutting the combs out entirely and mixing with them a good grade of extracted honey, and selling to your neighbors as bulk comb honey. But do not attempt to ship this to the Northern cities, at least, where it will be sold as a glucosed concoction.

Now, dear friends, if you will take these suggestions in the spirit in which they are written, you and the honey-man in the city will both profit; and you will at the same time stimulate the comb-honey market. There is no trouble at all in selling No. 1 and "Fancy" comb honey — bear that in mind.

HOFFMAN FRAMES—THEIR MERITS AND DEMERITS.

THERE has recently been some discussion in the *Bee-keepers' Review* and in these columns regarding the merits of the Hoffman frame. Mr. W. Z. Hutchinson and Mr. J. A. Green are foul-brood inspectors for their respective localities, and, of course, have had opportunity to examine hundreds of hives, handling a great variety of frames as a matter of course. Both men take the view that the Hoffman is not a convenient frame to handle, and there are some others of the same opinion. Mr. Green, while not condemning the frame, believes it has inherent defects which might be remedied, but he does not show exactly how. The chief objection that seems to have been raised against it by himself and others is that the division-board that is sent out with it in the hive with which it goes can not be removed readily; and because of this fact the difficulties attendant on the handling of such frames is very greatly increased. Mr. Green says, "If the division-board or follower were more substantial, and a little more space were allowed back of it, a careful operator could get along with it very well." But he does not indicate *what* construction of follower would be better; nor does he explain how it would be *possible* to provide for more space in the standard hive, of which, perhaps, a million or more are in use. The manufacturer is glad — yes, eager—to adopt whatever improvement will *surely* be an improvement, providing it is practicable to carry it out. But he can not introduce a change which throws all other supplies out of harmony with it. It would be impossible to make standard hives a little wider without calling down upon our heads the righteous indignation of all our old customers whose old hives and covers wouldn't match the new.

From a careful reading of Mr. Green's article in the *Review* it is evident that the follower which is pronounced flimsy is not the one the Root Co. has been making for the past four or five years; but I notice that some of our competitors are still making the same old follower. The one we now make is much more substatially made, and can be removed with a hook or even with the bare fingers. See what Harry Lathrop says on p. 658, this issue; also J. E. Chambers, on page 660. But I am quite free to confess that any construction of follower which I have seen suggested will be difficult to remove where propolis is very bad. That same objection will apply to any closed-end frames where the space in the hive is limited.

But perhaps friend Green condemns (and rightly, too) a hive using a follower in the regular standard ten-frame Dovetailed hive. This does not and never did allow of such a thing. But because customers complained that we supplied it with the eight-frame hive we put them in packages of ten-frame — not with the expectation that they would be put in the whole ten frames in the hive at once and the follower too. It can be done after a fashion, and we have found that many of our customers have done so, when we have distinctly stated it could not be with any degree of satisfaction. If I were a foul-brood inspector, and had to open up one such hive I am afraid I should feel more like "cussing" the manufacturer than calmly sitting down and *dis*cussing the matter in a friendly way with that same person. If Mr. Green or Mr. Hutchinson has been working this kind of combination or has been running up against the old-style follower, I don't wonder they both write as they do.

The columns of this journal are open for the discussion of the Hoffman frame. While we know positively that in some warm climates, where we have tried to introduce some other frame than the Hoffman, the great majority of our customers in those climates will have nothing else. For example, in Cuba we urged our agents and dealers not to favor the Hoffman frame, believing that, on account of propolis, it would not be satisfactory, and that it would be better to recommend the thick-top metal-spaced frame which we sold. But our customers would not have it so, and demanded the Hoffman, and the Hoffman they are buying by the thousands.

I admit that, in some localities, this frame can not be used, owing to an excess of propolis; and right in this connection I know from personal observation that Dr. Miller's location is one of them. It would not be at all strange if parts of Michigan and Colorado would furnish the same amount of propolis, rendering the frame a nuisance.

It is well to bear in mind that not *all* manufacturers make the Hoffman frame alike. As made by some of them it would exhaust the patience of an angel, to say nothing of the outraged feelings of a common every-day mortal who thinks (if he does not say them) words that do not find the printed page. It is well to remember that there are Hoffman frames and Hoffman frames, and there are followers and followers.

I wish to say in this connection that I thoroughly appreciate the kindly spirit manifested in the criticisms; and some of my friends have hesitated to say any thing about it in print for fear it would "hurt my feelings," because, in fact, I suppose I introduced them to the bee-keeping public. For the benefit of our younger or more recent readers, I will state that, in 1890, I made a bicycle-tour through New York, and there saw that closed-end and half-closed-end frames were being used very extensively. I came away convinced that the self spacing feature as used by Mr. Julius Hoffman was a great labor-saving device, and I still think so. But there are differences of opinion as to which of the self-spacing frames is the best. All things considered, I came to the conclusion that the Hoffman combined most of the advantages, and that it would be best adapted to most localities. The fact that millions of them are made now would seem to bear out the correctness of that opinion, although I admit it is not conclusive proof of it. But as for "hurting my feelings" — dear, oh dear, no! I invite friendly criticism, and our columns are open for a general discussion of the whole matter. Neither the Root Co. nor any other manufacturer could afford to take the position of keeping back the truth or trying to force the bee-keeping world to buy something it ought not to have if it does not know. From a business point of view it would be suicidal.

We shall be obliged to friend Green, and will pay him for it, if he will suggest the construction of a follower that will not at the same time run into some other difficulty. It is not a question of making the hives wider, as we can not change a standard dimension at this late date *unless an entire sweeping change* is inaugurated. As I have said before, we provide very deep hives; standard Langstroth depth; Danzenbaker with frames a little shallower, and still other hives with frames shallower still. We have metal-spaced frames, half-closed ends, closed-end, and old-style thin-top unspaced Langstroth, and unspaced frames with thick top-bars.

Now, in inviting discussion we are not seeking the opinion of the kickers only, but we desire to get expressions from both sides — yes, from those who have used the Hoffman frames extensively as they are and as we have made them, and from those who have used them and do not like them. What we desire to get at is the general consensus of opinion, and not the opinion of one side or the other who may possibly have extreme views, but represent only the small minority; and in saying this I do not mean to class Brothers Hutchinson and Green as the extreme kickers of the wee little minority. I think they know me well enough to accord to me a better opinion of them than that.

I have thus far published every thing about the Hoffman frame, for and against, except in one or two instances, which were personal matters and nothing concerning the merits of the frame itself.

GENERAL
CORRESPONDENCE.

HUNTING
A
BEE-HUNTER.
BY "NEMO"

" Here he goes, boys! Gracious! what a track! he's a big one."

"All right; now go slow and careful, and let's not lose it again."

There were three of us, and we had started out on a thawy day in February of the winter just past, in quest of coons. About noon we struck a track which we followed with difficulty, owing to the fact that a crust had formed the night before, which enabled the animal to travel for several rods without breaking through; and it was only when we found the thin places that we could do any tracking.

It was after a longer search than usual, and the final finding of the lost track, that Doc called out, " Here he goes, boys!"

All was now plain sailing for a time, and we followed the trail over logs and through brush to a tall oak where the tracks seemed to end; but the marks upon the tree-trunk and the scattered pieces of bark upon the snow showed plainly that the coon had gone up.

" Say, boys," said Fred, " we'll have that coon inside of twenty minutes."

"He's our meat," said Doc.

" Yes, that's all right, Doc," said I; " but where's the hole he went into?"

" Oh! it's probably up somewhere in that crotch where those two big limbs branch out; but let's not fool away any time—days are short, and that oak's no fishpole."

A half-hour's work with ax and cross-cut saw brought the tree to the ground. A rush for the top, and a hasty but unsuccessful search for the coon followed.

" What's become of that coon, anyhow?" said Doc.

" Oh! he's probably in that hole in the crotch," answered Fred.

Here Doc indulged in some choice talk that couldn't be put into a religious book without injuring the sale of it, and then proceeded to examine the tree. Not a hole could be found large enough for a bumblebee to crawl into.

Pretty soon Fred called out, " Here are his tracks! He's come down that big hemlock, and fanned out."

Away we went again until we reached a pine stub broken off about twenty feet from the ground. The coon had climbed this and come down. A few rods more brought us to a large chestnut where the act had been repeated.

" Say, boys, that coon must be training for a cake walk; he's getting lots of exercise out of it, anyhow. I'd like to know what he is doing all this climbing for."

" Guess he's lost something, and trying to get on track of it," said Fred.

" Now," said I, "that's pretty close to the truth. I can tell you what that chap's up to. He's trying to get on track of some honey."

" Honey?"

"Yes, honey. That coon is a bee-hunter, and that's what he is climbing the trees for."

" Do coons like honey?" Fred asked.

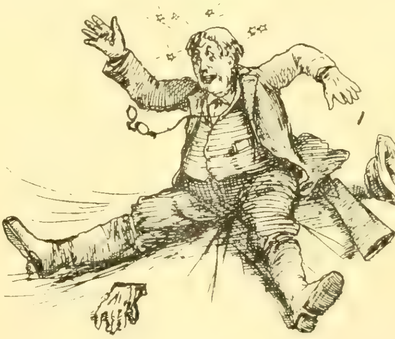
"Like it? Well, I should remark. Why, don't you know the coon is little brother to the bear? and both are passionately fond of honey."

" Well, this is interesting; but, come! I'm anxious to wear this little brother's scalp in my belt," and Fred led off on the trail which now took us out on the smooth ice of the bayou, where we lost the track entirely.

" Well," said Doc, "I guess we might as well fold our tents like the Arabs, and silently steal away. We can't track any thing on this ice."

" Don't give up yet, Doc," said Fred. "I'll bet a brownstone front he's making for Wintergreen Island."

Fred now took the lead. I came next, and Doc last. A sort of sliding or skating motion was made necessary by the extremely slippery condition of the ice, and we had not proceeded far when an expressive "*Ugh*" in the rear caused us to look back, and there was Doc sitting on the ice in the shape of a letter V, hands and feet in the air.



" Tired, Doc?" asked Fred.

" That's what Mark Twain would call attitudinizing," said I.

What Doc said was drowned by the explosion of laughter at his appearance, which, I think, was just as well from the nature of a few selections which reached my ears. Doc picked himself up and said, "Well, laugh, you blamed idiots; I have my opinion of any one who will laugh at the misfortunes of others."

"Oh! come, Doc," said Fred; "you'd laugh if you could have seen yourself as we saw you," and Fred struck out for the island; but he had made scarcely twenty paces when he dropped the saw he was carrying, and began wildly clawing the air in the endeavor to save himself from falling.

"Whoop! grand right and left," sung out Doc, as Fred finished the performance by bringing up with his arms around a water-beech. Fred looked around. I was laughing, of course, but Doc was just simply paralyzed. He was doubled up like an old jack-knife, and not a sound escaped him; but we could see his sides nip and buckle, and finally he got out two or three grunts followed by "Oh! oh! oh! whoop!" and then a prolonged "haw, haw, haw," which seemed to relieve him so he could straighten up. The tears were running down his cheeks, and his face looked like a brick smokehouse overgrown with red Rambler roses.

"I say, Doc, you feel better, don't you? I have my opinion of any one who will laugh" — but Doc's "haw, haw, haw" cut short any effort of Fred's to get back at him, so he picked up the saw, and, with a marked degree of care, pushed forward toward the island.

Some twenty-five or thirty feet from the shore of the island grew a large elm. Pieces of bark scattered about showed that the coon had gone up. I was admiring the clear ice, and saw several inches below the surface pieces of both drone and worker comb. I called attention to this, and we all became enthused.

"We'll get a bee-tree, anyhow," said I.

"Yes, and may be two or three coons," said Doc.

"Well, yes; you may; but I wouldn't be surprised if we didn't find a coon."

"All right," said Fred; "we'll take the coons, and you can have the bees and honey;" and I saw him wink slyly at Doc.

"All right, boys; I'll stand by that."

The tree proved to be a thin shell, and a few minutes of work brought it crashing down full length upon the ice. We were quickly at the top. Here we found a hole eighteen inches long and a foot wide, going entirely through the body of the tree. I could hear the hum of bees, and found that they were above the opening. Further inspection showed that comb had been taken out from the trunk above this opening a distance of eighteen or twenty inches, probably as far as the coon could reach.

We now cut off the body where we thought the bees were, and again about three feet higher. This gave us a section about three feet in length. The bees were found in a fair-sized cluster, and so compact that the cluster was not even broken by the fall.

We now searched for the coon, but none could be found. In fact, there was no lodging-place for this roving bee-hunter, as the tree was hollow throughout.

Fred and Doc were disappointed, but I did not care much, being more interested in the bees. Here was a hive at least forty feet from the ground, robbed of a large portion of its stores, and exposed to fierce winds in the coldest winter known in this region for years, when the mercury ranged for several weeks in succession from 4 to 25 degrees below zero, and on one occasion 40 degrees below, with no bottom protection of any kind. I took the section with bees and honey, and placed them in the cellar; but they died before spring, evidently from lack of stores.

THIN VS. THICK TOP-BARS.

Advantages in Favor of the Former.

BY S. T. PETTIT.

Mr. Root:—While considering the superiority of thin top-bars, compared with thick ones, first let us notice the gain by using a ⅝ instead of ⅞ top bar. For this purpose let us take the ten-frame Langstroth from which to make our calculations, presuming it to be an average-sized hive now in general use in the United States and Canada.

The gain in comb depth in each frame is ¼ inch; in ten frames the gain is 2½ inches ×17=42½ square inches of comb by 50 (the lowest estimate of cells to the square inch) makes 2125 cells gained in the brood chamber alone.

The difference between ⅜ and ⅞ is ½ inch, would give a gain of 4250 cells to the brood-chamber.

Many use the same top-bars in both brood-chamber and extracting supers, and in such cases the gain is indeed a consideration of no small importance; nor is it in the brood-chamber alone.

It must be borne in mind that we are not discussing the size nor the depth of hives. These are quite different considerations altogether; but whatever the dimensions of the hive may be, we certainly should economize every possible internal available inch that can be used to advantage. Hives cost too much to waste any inside space. I am too economical of money and personal comfort to buy, handle, and haul about most of my lifetime worse than useless wood. It has been held by some that a depth of ⅞ is necessary to prevent the bees from using black wax from the brood-chamber to cap sections.

Once I was led to fear danger from that source; but I doubt there being any danger if they are properly handled. I took comb honey, with and without excluders, for a period of about 16 years over ⅝ top-bars, and I question if any one could detect any difference in whiteness or in any other way, whether taken over ⅝ or ⅞ top bars. No drones among the sections, and timely taking off, are the chief factors in securing whiteness of comb honey. Bees don't go hunting around for "old black wax" so long as their sacs are full of new honey.

My first effort at taking comb honey in a scientific way was rather unscientific, as my narrative will show. I give it for what it is worth in this connection. It was a good many years ago, and I do not know that any one was taking comb honey within thirty miles of my place, so it was not easy to take lessons from others.

Well, my hives had no bee-spaces at the tops, and my supers had no bee-spaces at the bottoms. The sections rested upon strips of tin nailed under or to the under edges of the supers. The sections were filled with foundation; they were 1⅜ inches wide; no separators were used. The top-bars were ⅜ inch thick, and had a V-shaped extension below them, and were spaced the same as the sections — 1⅜ inches from center to center, so the spaces between the sections fitted right over the spaces between the frames.

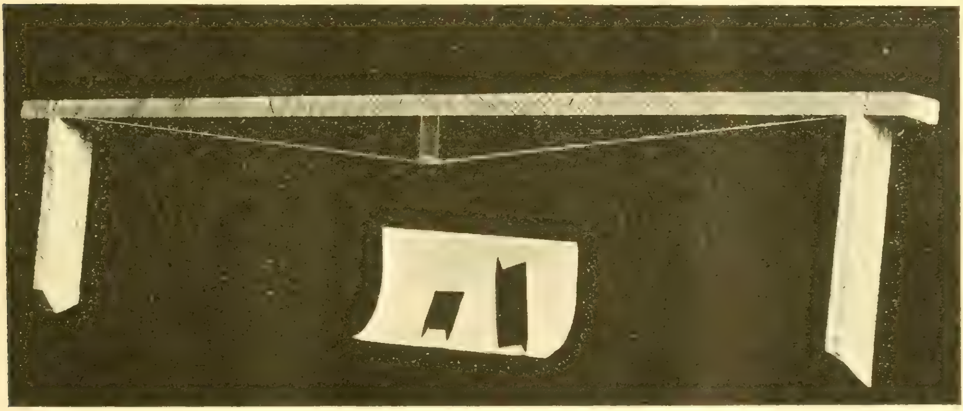
Well, then, the supers, sections, and all were set right flat on the tops of the hives and top-bars, and there was no hesitation on the part of the bees. They went to work and filled those sections in quick time. At that time I knew nothing about putting sections and supers under the first, so I put them on top. When the flow ceased I was anxious to see the section honey; so I took them off, pried them off, got them off somehow, and the sections showed no sign of "black wax."

Every year farmers bring hundreds of sections to our town and place them in some of the groceries so travel-stained, and the wood so covered with propolis, as to leave no doubt that they have been left altogether too long with the bees. In some instances I am persuaded that they had been with the bees a month after the honey season was past. They are a sorry sight, for at this writing some are still on sale in the groceries, and yet I have never seen any "black wax" on the cappings; but they are badly travel-stained.

I do not wish to make this point too strong: for, if really there is danger *when taken off in reasonable time*, we should know it and guard against it. But in any case a ⅝ bar is as safe as a ⅞ bar, and, really, is not a ⅜? The thinner the top-bar, the more easily the bees pass over it in winter, and that is no small item. The thinner the top-bar the more readily bees go to work in sections, doubted by some, of course, but not by me. In a good flow, strong colonies stick at nothing; but poor seasons test the matter.

In further support of thin top-bars I quote what a manufacturer said several years ago, to be found on page 742, 1901: "This is an exceedingly important matter; for if top-bars of brood frames under proper conditions are just as good ⅜ thick as ⅞, we could make twice as many out of the very same material which we now use in making such a large quantity each year. It would save heavy freight charges to customers, and the first cost and selling price could become lower." "There ought to be strong grounds for continuing the ⅞ top bar if it is to be continued." I must say here that my inquiries, recently made, agree with my past experience that there is no more need of excluders over ⅜ than over ⅞ top-bars, both being of the proper width.

But the question still comes up, "What about the sagging? Can a ⅜ top-bar be made cheaply with the needed rapidity? I believe it can. I herewith send a photo of a ⅜-inch top-bar showing a truss-wire passing under a piece of folded tin or sheet iron ¾ inch deep and ⅝ inch wide. Cut the material before folding, so as to leave little



PETTIT'S SUGGESTION FOR TOP-BARS.

spikes at each opposite corner, as shown in the photo.

Fasten the wire at each end with 3 oz. cut tacks driven about an inch from the end-bars. Drive the tacks ⅔ in, wind one end of the wire around one nail; drive it home, then draw the wire fairly taut and give it a turn or two around the other nail, and drive it home; cut the ends off, and the added strength will be quite a surprise, and quite sufficient.

But, after all, perhaps for the average specialist a ½-inch or Mr. Doolittle's choice, a $\frac{7}{16}$ inch, is preferable. Either one 1⅛ inches or near that width will be found strong enough.

Right here, perhaps, I had better say why: Years ago I fixed upon a ⅝ top bar. My covers were large, and purposely made heavy to keep in place in windstorms. They all rested upon cushions placed upon the tops of the hives; and to support these a strong top bar is needed. Two ⅜ bars can be made of one ⅞ bar; but any size between ⅜ and ⅞ will generally cost more to make than a ⅞ bar, because many top-bars are made out of odd pieces ⅞ thick, and require no extra cutting down. In other words, the manufacturer generally would prefer to make ⅞ bars to any thickness down to ⅜.

Aylmer W., Ont., Can.

[You estimate 4250 cells more for the ⅜ top bar than for the ⅞. This, of course, takes for granted that a ⅜ bar is practical to use. Assuming that it is, for argument's sake, it does not seem to me that this extra number of cells would materially increase the honey crop or the bee-keeper's profit. Why, there are some who prefer an 8 frame to a 10 frame because the latter is too large, they say. Then there are others who say a 10-frame hive is not nearly big enough—that it should have a capacity of 12 frames; and a few others argue in favor of 16. I do not, therefore, see that a mathematical calculation of only 4000 cells makes very much difference one way or the other — it is too small to cut any figure in the profits.

Let us now examine the other question; viz.: Is it practicable to make a top-bar ⅜ inch thick that will not sag, of the width shown in your illustration? If you will try a few of those I think you will be *thoroughly disgusted* with them. We used a plan exactly the same in principle quite extensively 15 or 20 years ago. While the top-bars did not sag, perhaps, very much, they had a strong tendency to bow *upward*. Unless the wires were drawn taut, the center support would drop out. In order to hold it in place there had to be a tension put on the wire, and this had a strong tendency to bow the top bars upward, which is just as bad as having them bow downward to the same extent.

The ⅝ is not practicable, as you surmise. The ordinary standard lumber is one inch thick, which, when planed down, is ⅞. To cut it down to ⅝ requires setting the planer-knives where they will take off a full ¼ inch; so that from the standpoint of the manufacturer, the ⅝ bar is not quite so cheap as the ⅞; *but* we could make a ½-inch and a ¼-inch bar out of a ⅞, leaving ⅛ for saw cut; the ½-inch piece we can use for a top-bar and the ¼ inch for a bottom-bar. The Root Co. has been considering the advisability of reducing the thickness of the top-bar, but find that the frame made thus is very much weaker, for the reason that the shoulder which stiffens and supports the end-bars is nearly all sawed away, leaving only $\frac{3}{16}$ inch. This affords very little opportunity for good substantial nailing, and a weak brood-frame is an aggravation. If a ½-inch top-bar were made at all it would have to be made on the plan shown in the illustration; and even that has objections, and serious ones, from the standpoint of the manufacturer. The only way to make a ⅝-inch top-bar is to cut away the surplus stock, leaving a molded comb-guide in the center in relief; but when we were making them thus a few years ago there was a strong demand from many quarters to make the top-bar full ⅞ deep at the sides.—ED.]

BEES AND FRUIT.

Bee-keepers Welcomed by the Fruit-men.

BY TRANSIENT.

Here is the apiary of the up-to-date Mr. Albert Lane, of Vorden, Sacramento Co., Cal. This gentleman is engaged in the production of comb honey, his apiaries being located in the adjacent orchards. He raises bees for sale, and each year increases his bees twofold, and still gets his crop of honey. Being in a locality overstocked he places his bees in yards of 30 to 50 each. His neighbors are all engaged in raising fruit, principally peaches, cherries, and apricots. So eager are they all to have the busy bees visit their fruit-trees that they furnish him all the locations he needs. One orchardist makes stands for him to place his bees on; another furnishes stands and a spacious well made shed of lumber. In another orchard a large barn is given over to his use and he has a veritable house apiary.

Still another apiary we visited had the hives painted red, blue, white, yellow, and so on, and all under a good shed near the orchardist's house. When we inquired about so much display in colors, Mr. Lane said that the owner of the orchard furnished him paint, etc., and desired the hives to be ornamental as well as useful to him.

In another instance, bees were placed in three localities in the same orchard. The fruit-men on the Sacramento River realize that, to get sure and full crops of early fruits, they must have the aid of the honey-bees, so they are sought for and welcomed. Mr. Lane has the faculty of getting on well with his neighbors. He soothes over their pains from stings with liberal doses of honey. He says, "As the hair of the dog is good for the bite, so is honey good for the stings." He has made himself so useful to his orchard neighbors, that, like his bees, he is told to help himself to all the fruit he wants.

In the view Mr. Lane is seated on a hive in his working suit. Just now he is mourning the loss of his helper in his bee work. His good wife has "gone before," leaving him alone with two babes to care for. We assured him that he had the sympathy of all good bee keeper friends, and then moved on toward Sacramento.

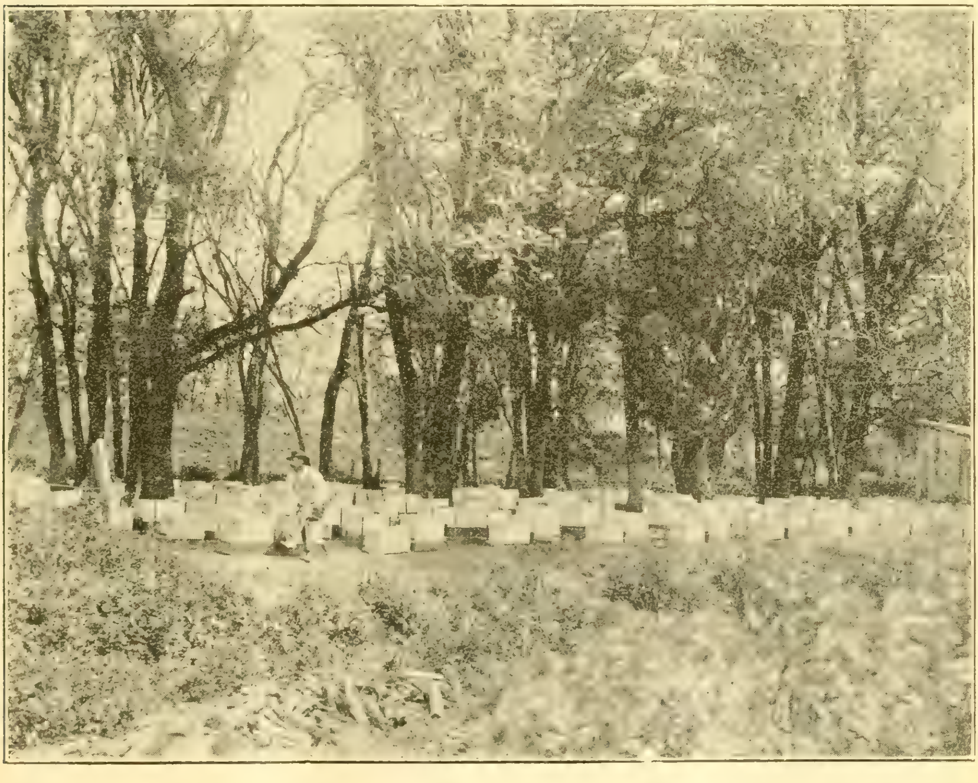
[The facts presented are valuable, as they are additional proof that there are up-to-date fruit-men who recognize the valuable work performed by the bees in fertilizing their fruit-blossoms. It is only ignorance and prejudice on the part of the fruit men, coupled with a lack of tact, sometimes, on the part of the bee keeper, that causes trouble between the interests. The region of the Sacramento Valley is not very far from a region further south where there has been a great deal of trouble between the bee-keepers and the fruit-men — not because there was any lack of tact on the part of the bee-keepers, but because the bees were suspected of being the sole means of spreading pear blight. Some late developments go to show that they are not, and that the bees do more good than harm. — ED.]

AN UP-TO-DATE BEE-KEEPER IN NEVADA.

See Cut on Next Page.

BY SOJOURNER.

This is one of the out apiaries of J. F. Aitken, near Reno, Nevada. The apiary is as it was put in winter quarters for 1903. Mr. Aitken is a very progressive apiarist, and has every thing up to date. At his apiaries I saw many of the A. I. Root goods. His hives are all painted three coats, and equipped with the latest Root covers, and are the Root eight-frame Hoffman. The hives stand on well made individual stands. He works for comb and extracted honey, and employs a practical apiarist the year round, but superintends all work himself. It would well pay any one interested in practical honey production to visit his apiaries, and there see his many labor-saving devices. He wires all his frames; uses foundation of his own make, and owns a German wax press. He is mastering the foul brood which has such a hold on Neva-



APIARY OF ALBERT LANE, VORDEN, CALIFORNIA.

da. The good foul-brood law which Nevada has was due to his influence, for in every way he is a practical business man. His locality is pretty well overstocked, so he has his bees in yards of about 100 each.

His principal honey source seems to be alfalfa. This is the whitest and best honey in body we ever saw. He finds a ready market east for what he produces.

[The picture suggests a number of interrogation-points. Why those big stones, one on each hive? To answer my own question, I infer that there are some heavy winds occasionally in that part of the country, rendering their use necessary. But our friend Mr. Aitkin uses quilts or cloths on top of the frames. While these are propolized down, the covers are not, thus making it a matter of necessity to put a heavy weight on top to hold the covers in place. But why lift these heavy stones? Why not dispense with the quilts and the cloths, and let the bees seal the covers down? Every stone can then be dispensed with, and the frames will be cleaner on top.

The trees on one side, the sheds and buildings at the end, and the fence on the right, are possibly windbreaks; but the fence is hardly high enough to accomplish much; and the presumption is, it is used to keep off stock.

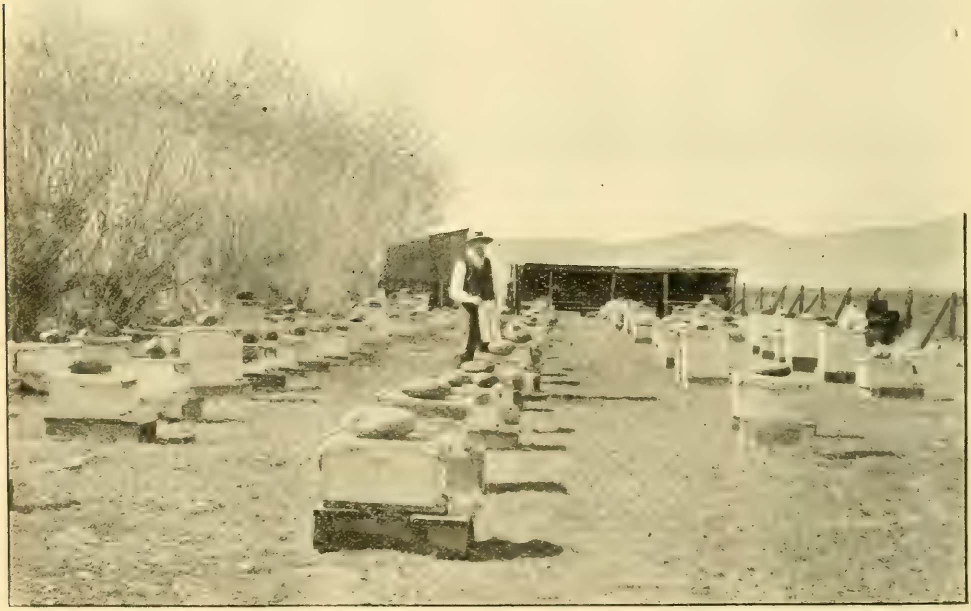
I notice that the hives are in regular rows. Does this not confuse the bees more or less? In my own experience, where each hive is like its neighbor, and they are arranged in regular rows, robbing will be much worse, for the reason that the bees are not always able to determine who are their friends and who are foes. Young field-bees will go into the wrong hive, and are often killed. The result of this is, there is a reduction in the working force. My way would be to put the hives in groups of 1, 2, 3, and 5, each group different from the one next to it. Then I prefer, where it is possible, to have some distinguishing object near each group, such as a shade-tree or a bush. I believe that in Cuba where the hives are all alike it has been found that regular rows are not to be recommended, on account of the loss of bees, and robbing.—Ed.]

HAS THE STRAW HIVE A FUTURE IN AMERICA?

How the Straw Hive is Almost Universal in Germany.

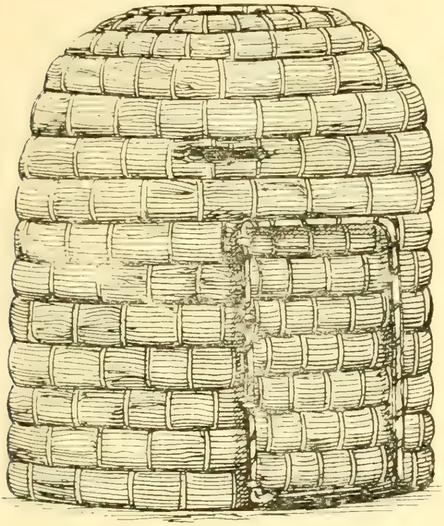
BY F. GREINER.

It is funny, isn't it? The symbolic beehive as used everywhere, even on our honey-labels and bottles, is a hive made of straw. The bee-keepers of our time have never seen a straw hive, and might not recognize the conical thing as such should they chance to see one; and yet straw is one of the very best materials a bee-hive can be made of. Our bee-keepers here who are



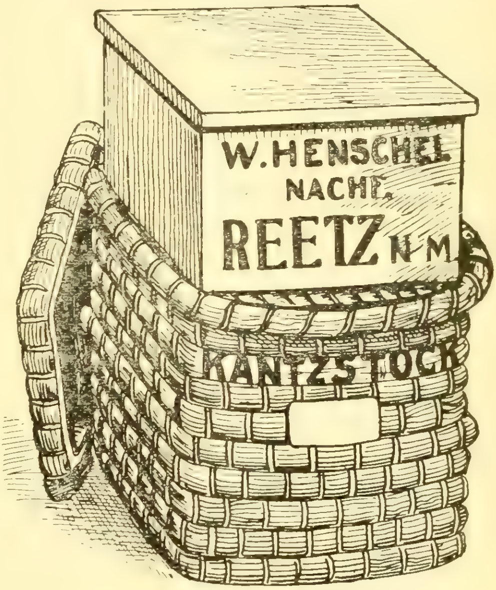
AN OUT-APIARY OF J. F. AITKIN, NEAR RENO, NEVADA.

not familiar with bee-keeping in the old countries have probably no idea that hives of straw are even now almost solely used in certain parts of Germany. Gravenhorst's "Bogen stuelper" is one of the oldest frame straw hives; but it must be turned bottom up to take the frames out. The majority of straw hives in use were not frame hives. The writer well remembers the differently shaped straw hives in his grandfather's bee-house. It seems the honey from them, too, had a peculiarly fine flavor not to be compared with our finest section honey.

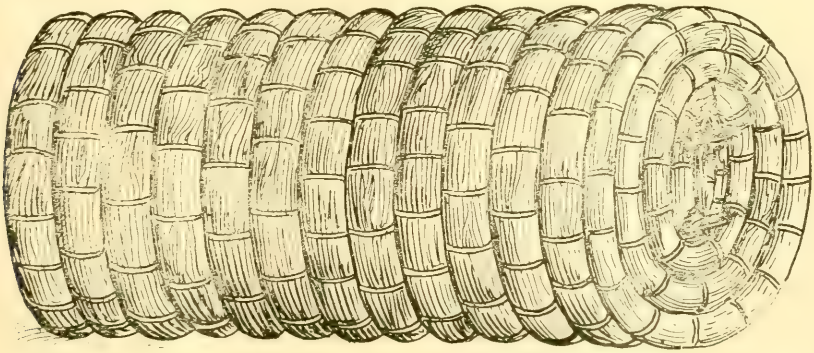


A CONICAL STRAW HIVE.

Of late, straw hives of square shape have been introduced in Germany, which admit of being manipulated exactly as a Dovetailed hive is. The walls are pressed straw, sewn through and through with split cane, and are two inches thick. A wooden frame is secured to the straw at top and bottom, the upper one having a rabbet cut out to receive the frames. As this hive is described in *Gartenrat*, a horticultural journal printed in Charlottenburg, Germany, it consists of two sections, or rings, each one holding 16 short shallow frames (7 inches deep). The hive is closed with a straw cover two inches thick. Such a hive, as the reader will see, is very simple, and ought to be cheap. It is a light hive, and could be adapted to the L. frame. It certainly would be a good hive to winter in, and I see no reason why we could not use it here with good results. They would need to be housed, however, which is a drawback. This might be overcome by using a large shade or weather-board instead. When the American bee-keepers see the need of using other material than pine lumber for hives, perhaps they will turn their attention to straw, and they will contrive ways to manufacture straw hives in a wholesale way. I hope the time will not be far distant. Of



KANITZ HIVE.



A HORIZONTAL STRAW HIVE.

course, any kind of super may be used on these straw hives. The *Gartenrat* says on this point, a third section may be made of any odd pieces of lumber by the bee-keeper himself, and fitted out with frames or boxes, which may be used as the surplus-honey chamber.

The German bee-keepers, as a whole, the followers of Dzierzon in particular, have always been opposed to the American method of opening hives from the top. The latter are still holding to this view, and can not condemn the American style of hives in too strong terms. The introduction of such hives as described, and the Gerstung hive, and the enthusiasm with which they are received, shows plainly which way the wind blows.

Naples, N. Y., April 4.

VARIOUS MATTERS.

No Danger from Putting Honey in Syrup.

BY G. M. DOOLITTLE.

I have desired to write about many things which have appeared in GLEANINGS during the past few months, but could not find the time; and what I write now must be in briefest form — only just touching, as it were, on a few things upon which it seems necessary for me to say a word or two.

On page 219, March 1, Dr. Miller seems to think it necessary to caution the readers against my plan of using honey when making sugar syrup for feeding bees, especially where the honey has to be bought, for fear that the same might not be free from foul brood. He must have forgotten the formula or else failed to realize that honey brought to the boiling-point is free of all liability to disease. The formula is this: 15 pounds of water put in a suitable-sized vessel, and brought to a "boil." When boiling, slowly sift in 30 pounds of granulated sugar, stirring well as the sugar is sifted in. Now bring to a boil again, and skim, if necessary. When boiling, set from fire and stir in 5 pounds of honey. This makes 50 pounds of syrup, equal to if not better than honey, to use in any spot or place for feeding bees for winter stores. Now, Dr. M., if you or any one else can start any foul brood from this preparation you will be able to bring about an *impossibility*, according to my experience in the early seventies, when I cured my whole apiary of foul brood, and fed back the whole of the foul-broody honey to the bees, without any treatment of the honey more than to bring this bad honey to the boiling-point, or "*scalding* the honey," as it was then termed. I know nothing (experimentally) about foul brood since that time; but unless the foul brood of 1900 is different from that which swept the center of this State nearly clean of bees during the sixties and seventies, neither you nor any one else need have any fears about using honey in making sugar syrup by the above formula. I should not notice this, only as I am confident, after using it for more than a score of years, and after testing all other ways of making syrup for feeding bees, that the same is superior to any thing else along that line.

INDOOR VS. OUTDOOR WINTERING.

On pages 275 and 324, March 15 and April 1, I see that E. R. Root and Dr. Miller do not just agree as to my present standing on wintering bees, the editor seeming to think that I still try to winter half of my bees on their summer stands and half in the cellar. I supposed that I had made it plain that, after the loss of the early eighties, when, out of 90 colonies wintered outdoors, I found I had only 13 hives that were alive, and not enough of these live bees in the 13 hives to make three decent colonies, that I then and there changed to cellar wintering entirely, only for the few that I *must* have winter out as "playthings" to satisfy my desire of inspecting them when I desire, and hearing their merry "hum" whenever a warm day occurs in winter. That same year I had 55 in the cellar, and came out with 54 rousing colonies, so that I was able to stock up my beeless combs in fine shape before the month of June was half out. The past winter I had 7 out on their summer stands, and 3 of the 7 pulled through, but not having a flight from October 30 to April 5 so wore on their vitality that all the bees in the three living colonies would not make enough to equal those in one colony from the cellar on May 15. So Dr. Miller is right in thinking that, when I settle to a certainty which is better, I always change to the better.

BROOD OVER SECTIONS.

On page 323, April 1, I see that both the editor and Dr. Miller agree that, in putting brood over sections, "The bees will seal the sections more or less dark with bits of black comb brought down from above." They will do just that where open tops are used; but with sections having closed tops, or where wide frames are used, the same fitting close at the top, no such thing can or will result. Nearly half of my surplus arrangements have wide frames with close-fitting top-bars, each wide frame holding 4 sections. Each super is the exact size of the hive, except in height, which is the same as the sections are deep. Eleven of these wide frames go in a super, together with a thin board and two wedges, which are ⅜ thick. Now, in brief, how they are used in connection with non-swarming:

As soon as the colonies become strong enough to begin to think about swarming, or want more room in which to store honey, put a queen excluder over the hive the colony is in, and on top of this set a hive of empty combs of the worker size of cells. Leave thus till your honey-flow is about to commence, or you think that the two hives will not keep the bees from swarming longer, when you will set off the top hive, take off the excluder, and set the lower hive off the bottom board, putting the hive that was on top on the same. Now select a frame from what was the lower hive having the least brood in it, just enough to keep the queen contented, and put it in place of the center comb in the hive, now on the stand, and then put on the queen excluder. On the excluder put a super of sections all wedged ready for work, when the bees and queen are to be shaken down in front of the hive now on the stand. I do not look for the queen nor try to shake the bees off clean, only enough so that I can reasonably suppose that the queen is with the bees so she will go in with them in the hive now on the stand When the bees are mostly shaken off the combs of brood, and I feel quite sure the queen is not with any bees which may stick to the hive, the brood is put back in the same, together with the comb taken to give place for the frame having a little brood to keep the queen contented, this hive of brood and scattering bees is placed top of the super of sections (just put on), and the bees have done their swarming for the year. If the combs that were formerly in the upper hive are from one-fourth to one-half full of honey, which the bees have stored in them while they were acting as a swarm-retarder, so much the better, for this honey will move up into the sections as soon as the queen gets well to laying. The three-eighths space left open by the wedges forms a "shute," as it were, for the bees to pass down through as the young ones emerge from their cells and wish to go out for the first time; and, on returning, they stop with the queen and in the sections, till at the end of 21 days we have the whole of the bees in the lower story and the sections, by shaking all off from the now broodless combs, and taking them away. Of course, sections are added as is necessary, generally by raising the first super up and putting one under having open top bars. In this way nothing from the brood-combs above can get into the sections, and we have a rousing colony storing all of its honey in the sections, with no desire to swarm, and with only the one manipulation, very similar to the shook-swarm plan recommended by all. Try it, doctor, and see how you like one of the plans of non-swarming Doolittle has worked out in his study along this line.

"HONEY CONSUMED IN A YEAR BY A COLONY OF BEES."

Will Dr. M. and E. R. R. turn to that table given as the amount of honey consumed during a year by a colony of bees, as given by H. Kramer, on page 376, April 1? Look at that minimum, 19.8 pounds of honey consumed during the great breeding months of the year — May, June, and July, and see if you can believe such a thing. If you are inclined to do so, just turn over to page 387, and look at that frame of brood (which is very similar to hundreds which I have had), and figure out how much honey that brood cost. Then multiply those figures by 7, as each hive will contain about the amount of brood equal to 7 such frames, if the colony is in a ten frame hive. Then multiply what seven such combs of brood cost in honey by four, as they will be filled about four times with brood during May, June, and July. After you have done this, if you know something of the cost of brood-rearing in honey you will think that Mr. Getaz's 200 pounds of honey for a year comes very much nearer the realization-point than that 19.8 does for the three months named. My figures, after years of close observation and experimenting, are as follows, for the average colony:

October—January	5 lbs.
February—April	10 "
May—July	70 "
August—September	15 "
	100 "

VENTILATION WITH CELLAR WINTERING.

I have been very much interested in all that has been said in this matter since this year has come in, and only lack of time has kept me from having a "hand" (in print) in the matter. I see that my name has been brought in quite often; but it being out of season I will only say that there is not so much difference between the editor and myself as there might seem to be — see pages 432, 433, of May 1. I have not the slightest doubt that his ventilation for that machine-shop cellar is just the thing. And I wish to go on record as saying that said *machine-shop* over the bees (or cellar) is just why he succeeds so well in wintering with his mode of ventilation — just the combination necessary for those conditions. He did not have those "happy" combinations in his other cellars, so he lost. But remember, friend Ernest, that not one in 1000 who winter bees in cellars has a *machine-shop*, and so it is safer to recommend a plan suited to the masses rather than recommend one that the masses can not well attain to. A hole dug in a side-hill for a bee-cellar, or a pit in which to bury the bees, is within *easy reach of all;* and that is the reason I have given the plan of my out-cellar to the public. The bees wintered splendidly till after the 15th of April, when they began to waste on the cellar bottom quite badly. Snow, rain, clouds, and high winds prevented my getting them out till May 2. And as their last flight was on October 30th, they had a confinement of over half a year, and I do not see now how they stood the test so well. Ten of the united nuclei gave up from loss of old bees during April and the first half of May. But all of the colonies not made up of united nuclei came through all right.

And now for something that beats all records with which I am familiar: June 2, just one month from time of setting out, one of the colonies sent out a rousing swarm, and I found others with eggs in queen cells preparatory to swarming, before I thought it possible or thought it necessary to plan to discourage any idea of swarming. To be sure, these colonies had been lying out for a week or more during hot days; but I did not think it possible for any colony to swarm within a month of time of setting out. Hives full of bees, brood and honey (ten L. frames), and swarming within one month from setting from the cellar. Will your machine-shop wintering show better results, Mr. Editor?

Borodino, N. Y.

[Don't you remember, friend D., that J. A. Buchanan, some years ago, boiled some honey from foul-broody colonies for ten minutes, gave it back to some healthy bees, and every colony fed such syrup developed foul brood in a very short time? And, again, elaborate experiments have been conducted by several scientists of note, going to show that even two hours is not sufficient to kill the spores of *Bacillus alvei* sometimes. I refer J Genonceaux, of Europe; Dr. W. O. Howard, of Fort Worth, Texas; Prof. C. F. Hodge, of Massachusetts; Mr. Brice, an English scientist; bacteriologist J. J. McKenzie, of Ontario, Can.; and T. W. Cowan, editor of the *British Bee Journal*. It is possible that, in the honey you *brought to a boil* there were very few if any spores among the bacilli; but in any case, while you may have followed a certain method of procedure without bad results, such a plan pursued by others might lead to disaster.

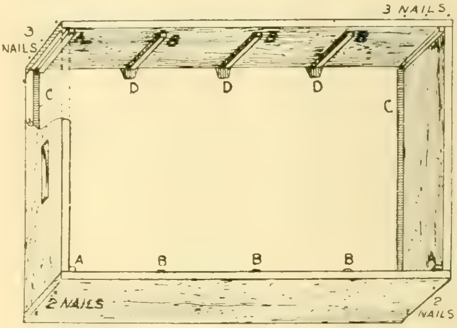
With regard to wintering half of your bees indoors and half outdoors, I stand corrected; and on the general subject of wintering both indoors and outdoors, I do not think we disagree very much; but certainly a machine-shop is not a necessary factor in good wintering. The machinery in this case *happens* to be over the cellar. The secret of success lies in the fact that the cellar is dry and very large, affording a great amount of ventilation; but when you compare our machine-shop cellar with yours you fail to note the fact that our cellar is used for wintering nuclei, two and three frame, just as they are used in the queen-rearing season, late in the fall. I am of the opinion that, if you attempt to winter such little colonies in a cellar without ventilation, even though your temperature be uniform, you might lose a large proportion of them. To sum up, where the temperature can not be controlled, copious ventilation is an essential factor in indoor wintering. With a temperature under control it may be dispensed with; but the result, I think, will be still better if fresh air be supplied.—Ed.]

A T-SUPER WITHOUT SEPARATORS OR FENCES.

Some Suggestions from a Bee-keeper of Large Experience.

BY ROLAND SHERBURNE.

I take the liberty to send you a drawing of a modified T-super to hold 4¼ × 4¼ × 7-to-foot sections, which I have been using for several years with great success. As I am not a new hand at bee-keeping, but a veteran, and, last year, raised 25.000 lbs. of honey from one apiary, about half comb and the rest extracted, without hiring any outside help, I think my views are entitled to consideration. I have nothing patented, and no ax to grind; but if I can give my fellow bee-keepers a new idea, or simplify the production of honey, I ought to do so.



Years ago I vowed I would never raise comb honey until I found some plan that would do away with brace-combs, division-boards, followers, wedges, thumbscrews, and the innumerable "contraptions" that have been made, sold, and used by the long-suffering bee keepers.

Like all bee-keepers I must use something of my own make, to suit my own notions, so I have changed the T-super to what I will call the modified T-super.

In the ordinary T-super, holding 4 rows, 7-to-foot sections, the outside rows, or 8 sections, could not be well filled on account of a lack of a full bee-space outside of sections, while the inside sections were all right. I was raising two kinds of sections—the full weight and light 11 or 12 oz. in the same super. (I will say here that I never used separators of any kind.)

This had to be changed; so, instead of making the super 12 in. wide, inside, I made it 12⅜ in., and nailed cleats or strips of wood, 4¼ × 3/16 thick, ⅜ in. wide, 5 strips on each side. These strips held the rows of outside sections 3/16 inch away from the inside of the super, and left, inside of the cleats, 12 in. clear for the sections. This arrangement gives me well-filled outside sections, and these sections, 4¼ × 4¼ × 7-to-ft., will come nearer averaging a pound in well-filled supers than any others I know of.

Notice these shipments: 12 cases, 336 sections, 327 lbs. net; 18 cases, 504 sections, 500 lbs. net; 16 cases, 448 sections, 445 lbs. net; 4 cases, 112 sections, 113 lbs. net. This is the kind I send out, and I have to be careful that the cases do not average too much, with the last year's crop.

Again, I have no thumbscrews nor screws of any kind — no wedges nor followers. One of the side boards is nailed securely to the ends; the other side is nailed with two 6-penny nails at each end.

When I fill the super I just take a hammer or strong knife, and loosen this side a little, fill in the sections, and close it up again. After the super has been opened a time or two it works readily, and the grip of the nails is sufficient.

The sections rest on T tins, movable, and tin strips along the ends of the super. T tins rest on tin or galvanized-iron snips that are large enough to project out past the cleats nailed to the sides.

I first take off two shavings with a rabbet-plane, on the bottom, so that the tin strips and snips will "drop in" and not be more than flush with the bottom of the super. I use wood zinc honey-boards and a $\frac{1}{4}$-inch bee-space above the sections. These supers should be made accurately. All the boards cut $4\frac{9}{16}$ in. wide; ends $12\frac{3}{8}$ long; sides 19 in., and sawed in a miter box or saw table. Make a sizing-board $17\frac{1}{4}$ in. long. This will give you inside length for super.

Nail one side to end flush, and put in the sizing-board. Bring the other end piece up to it and nail. Do the same with the other side, and all the cases will be the same, inside measure, whether the lumber used be thick or thin. All supers should be measured inside to be accurate. These supers will tier up nicely.

I will say here that wood strips to fill the top seam between the rows of sections make cleaner sections, after they are filled with honey, than if T tins are used for the same purpose.

This is a short sketch of the super I use. It can be manipulated very easily; has a minimum of propolis; holds the sections firmly.

I will say further that I have a closed-end frame hive just $17\frac{1}{4}$ inches long, inside measure, frames 7 inches deep, to go under these supers, that has no following board nor wedges to get glued up.

If you would care to know how I make this hive I can give you the description in another letter. I have been using it for several years, and will make one hundred more this spring.

Lone Tree, Iowa, April 9.

[The idea of providing a space between the outside of the outside row of sections and the super side is one that S. T. Pettit, of Aylmer West, Ontario, has advocated for some years back; but instead of having an open space he provides what he calls a divider, bee-spaced on each side, and perforated with holes. This permits of a clustering-space between the outside of the outside row and the side of the super. The reason why the outside surfaces of the sections in the old-style supers are not as well filled out is because there is not room enough—too few bees to keep up the necessary warmth for comb-building. By using wider supers (or narrower sections) and giving clustering room, these outside surfaces will be as warm as the spaces in the center rows of sections.

Mr. Sherburne's experience is quite in line with that of many others who have followed Mr. Pettit. The reports were so uniformly favorable that the Root Co., some two or three years ago, adopted this plan in all their plain-section supers by putting in an extra fence which in effect is the same thing as the Pettit divider.

But our correspondent uses no separators, much less fences. While it is possible to get along without them, and some successful bee keepers do so, the great majority have sooner or later begun using separators or fences, for the simple reason that so much of the non-separatored honey will not crate for market. The average beginner and the average bee-keeper had better not attempt to get along without them, if the experience of the great majority is any criterion. Then I have talked with commission men in New York, Chicago, Albany, and elsewhere, and they all condemn non-separatored honey.

Now, having discouraged the no separator idea, I do not wish to convey the impression that Mr. Sherburne can not get along without them; neither do I wish to imply that his honey is not cratable or not marketable.—ED.]

REPORT OF THE PHILADELPHIA BEE-KEEPERS' ASSOCIATION MEETING.

Held at the Root Apiary, Woodstown, N. J.

BY ONE WHO WAS THERE.

[The A. I. Root Co. at Philadelphia having bought an apiary of black bees which it intended to transfer and Italianize, invited the members of the recently organized Philadelphia Bee-keepers' Association to go to Woodstown, N. J., June 11, where the bees were located, and help eat a Bible supper of milk and honey. The round-trip fare was $1.00, and quite a company of bee-keepers were present to do honor to the occasion. A report has been sent us, which we take pleasure in presenting to our readers.—ED.]

The association took the 1:30 train at the Market St. ferry for the Woodstown apiary on Saturday, June 11, the ride being through a beautiful section of New Jersey, and a good hour's ride brought us to Woodstown. This thriving village, situated about 26 miles from Philadelphia, is composed of 2000 inhabitants, one of the oldest villages in the State, and situated in one of the most prosperous agricultural districts in South Jersey. Two carloads of milk are shipped from this station alone every morning in the year. It is certainly a location described in the Bible as a "land flowing with milk and honey."

The Root Co. bought out Mr. J. D. Coles' apiary at this point in the spring, and at their invitation the Philadelphia bee-keepers met with the Philadelphia manager of the company on this occasion, and they were promised a good Bible supper of plenty of fresh milk, Jersey butter with rolls, and fresh honey cut right from the hives.

As this apiary was all in ten-frame two and three story tiered hives of the Langstroth pattern, all black bees, the Root Co. was transferring for several days these bees into the eight-frame Dovetailed hives, and Italianizing at the same time. This being in the midst of the honey flow, each hive contained bees enough to represent two good ordinary colonies; and it was a sight that the bee-keepers said was long to be remembered, and they had never seen any thing like it before.

After meeting in the little building, and being called together by President Dr. Townsend and Secretary F. Hahman, they immediately donned veils and went out into the apiary, where Mr. Selser and two assistants had been busy at work all the morning transferring the bees. The air was fairly black with the little dusky workers; and as each hive had contained (having been left to itself) nearly a thousand drones each, these buzzy fellows along with the workers were making it impossible to hear an ordinary conversation ten feet away. After watching the process for half an hour, the bee-keepers gathered around, in a big circle, one of the hives which had been transferred early in the week, and Mr. Selser passed the frames out first to the president, who passed them on to the various members, creating quite a rivalry against the one who drew the lucky card on whose frame the queen was located. The queen was often found on the bottom-board or body, and these were also passed around to the members with the frames. Mr. Selser, during this time, smoked the top stories which were located over the honey-board. When the queen was found, a yell was sent up by the members.

Mr. Reeves, one of our older members, found three different queens. The others were scattered around among the other different members, no member finding more than one, and some not any. These black queens were immediately killed, and the hive again set in order and a new queen introduced later at the regular time. With the bees transferred, so much of the honey had to be cut out in chunks that the bee-keepers were grieving over the loss this was to the trade generally, saying it might have been saved early in the season and the honey put in proper shape to sell. Outside of a few stings to the operators over the hive, none of the members were stung, which was a remarkable fact, owing to their being all black bees and so greatly disturbed.

There were some new members who attended this meeting, and every move that was made filled them with astonishment and wonder. The veterans who had kept bees for years said it was one of the most delightful and interesting meetings they had ever attended.

At five o'clock the members adjourned from the apiary to the honey-house and partook of the truly Bible supper; and the way the milk, rolls, and big chunks of honey disappeared, showed that they heartily enjoyed it. Mrs. Harold Horner, formerly of Mt. Holly, who acted as hostess with Miss Margaret Selser, was kept constantly busy supplying the various calls for these delicious articles produced right at this place. The peculiar feature of this supper was that nearly every thing provided was raised within a mile of the place where it was eaten, including the rolls.

The bee-keepers took the 6:06 train back to Philadelphia, and decided that this was the most novel and peculiarly interesting meeting they had attended for a long time, with many thanks to the Root Co. and Mr. Selser and Mr. Horner for their genial hospitality.

SEED-GROWING FOR BEE-KEEPERS.

A Friendly Slap at Editors Hutchinson and Root.

BY W. K. MORRISON.

Bees and seed-growing are one and inseparable; yet how little do we hear about the seed-growing!—I mean in the bee-journals. But before beginning my suggestions let me digress a little to have a slap at two well known editors. One resides in Flint, Mich.; the other in Medina, Ohio. Both have told us the introduction of the intensive system of agriculture means hard times for the bee-keepers. Almost in the same breath these famous editors tell us that out in Colorado, Utah, Nevada, Idaho, Arizona, and New Mexico, where an *intensive* agriculture is followed, is just the place for bee-keepers. "O consistency! thou art a jewel." In Colorado a man cultivates from 10 to 20 acres to get a fair living, while in Ohio or in Michigan anywhere from 100 to 200 are necessary to do as well. And yet both of these fearful editors tell us intensive agriculture is bad for bee-keeping. Whew! where are we at? I will begin again.

Scotland and Saxony are both highly cultivated countries, pursuing intensive agriculture under great difficulties, yet both are excellent honey-producing countries, probably much superior to Ohio and Michigan. In Ohio the yield of wheat is 11 bushels per acre; in Scotland, at least 33. In most other crops the discrepancy is even greater. I once made a tour of Michigan, and what met my eye was a very extensive agriculture, the only exception being at Kalamazoo, where some natives of Holland were practicing intensive celery culture with great success. Certainly there is plenty of room in both States for intensive agriculture, but it hasn't arrived. I want to make Messrs. Root and Hutchinson feel humble, and prepare their minds for the new agriculture, which will be the salvation of both States in the good times coming.

SAINFOIN.

Though I traveled considerably in both States I did not see a blade of sainfoin — a crop that corresponds very closely to the alfalfa of the West. I imagine that, in most respects, it is the more valuable plant of the two. It produces honey in quantity and quality equal if not superior to alfalfa, and that, too, in cold wet countries — something alfalfa never does. It is grown in much the same manner as alfalfa. Possibly it will do equally well. Burpee the seedsman says it will succeed only in the South; but he also says crimson clover grows only in the South, whereas it succeeds very well in Nova Scotia, a very long way north. Then along comes the Canadian Experimental Farm, and says it does very well in Ottawa. Better boom it, Mr. Editor, and keep these wandering bee-keepers at home growing seed and producing huge piles of fine comb honey. Don't let them wither away like Rambler in Cuba, but set them to work bringing into fashion *intensive* agriculture.

Sainfoin is an important European crop, grown almost everywhere. I think it advisable to send straight to Europe for the seed, to get it fresh. Watkins & Simpson, 12 Tavistock St., Covent Garden, London, sell English-grown seed, and Messrs. Vilmorin Andrieux & Co., Quai de la Megisserie, Paris, sell French, while Italian seed may be procured from Messrs. Damman & Co., San Giovanni a Teduccio, near Naples. The Spanish kind, known as "sulla," ought to prove useful in California, Arizona, and Texas, as it is semi-arid in its habit. What is to hinder bee keepers from growing sainfoin for seed purposes, and booming it a little in their own neighborhood? They need not be too modest and retiring.

WHITE CLOVER.

In Ohio, Michigan, Illinois, and Indiana, and very possibly other States, white clover ought to be grown by irrigation in many cases. It is a grand plant, but not a drouth resister. If you, Mr. Editor, have never seen white clover under irrigation, you would be astonished to see it under such conditions. Personally I believe it would pay to grow white clover under irrigation right in Ohio; at least the seed-grower ought to grow his patch under irrigation. This is better than looking about for long-tongued bees. It is easier. The yield of white clover under irrigation is enormous, and of course the quality is XXX. Possibly, also, the yield of nectar is increased under water culture. Worth thinking about, isn't it?

ARTICHOKES.

Notwithstanding the fact the artichoke is a grand food for hogs in the hog-producing States, it seems to be but little known. It not only furnishes the very cheapest hog food, but tends to keep these animals in health. Prof. I. P. Roberts praises the artichoke very highly, and so do other eminent agriculturists; but still it languishes. Evidently it needs some one to sound its praises; and as it is a bee-plant, why not we bee-keepers do this for it?

HORSE BEANS.

In his write-up of California and its bean fields, ye editor didn't catch on to the value of the bean to Eastern agriculture. Horse beans form an important crop. They are principally used to feed hard-worked horses, and for this purpose are not equaled by any other food. These beans can be cultivated and harvested just as wheat is, but possibly in drills would suit the United States better. Dr. Moore, one of the editors of the *Country Gentleman*, indorses them for York State, and possibly they would be an acquisition in Ohio and Michigan. Anyway, it would be worth while to experiment with them.

RAPE.

The rape-plant has been successfully introduced into the United States, but is not as extensively planted as it ought to be. I think there is a chance here for those bee-keepers who are favorably situated for growing it for seed.

TAGASASTE (TREE ALFALFA).

The only reference I have seen in GLEANINGS to this great honey-plant was by the lamented Rambler. Those Californians who complain of lean years should try it and report. It ought to prove a very desirable acquisition in some parts of the United States. I am anxious to know how it succeeds in the Southwest.

RED RASPBERRIES.

There is hardly any plant, not excepting white clover, that will excel the common European raspberry as a honey-producer, either in quality or in quantity. The red raspberry furnishes a syrup that stands probably without a rival, and raspberry "vinegar" is a grand drink. Why would it not pay to grow the raspberry in suitable localities for these particular purposes — the more so as raspberry syrup is the best substitute for honey? and where there is a local trade the same people buy both.

HAZELNUTS, COBNUTS, AND FILBERTS.

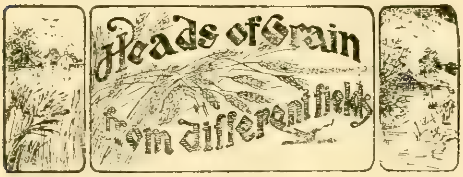
The growing of these nuts in the United States is an "infant industry." All three are pollen-plants, and, blooming early, do a great good to bees.

I could easily add a lot of other honey-plants for the reader to think over, but I shall be well satisfied if the bee-keepers do only a small part in making these things *fashionable*. Some GLEANINGS readers are in a position to work up this idea, and possibly some are at work on it.

[While there is an apparent lack of consistency in the statements made by Brother Hutchinson and myself, yet in reality there is none. While I can not be sure just what Mr. Hutchinson has said, yet I think you will find that, where I have spoken of intensive agriculture cutting down the yield of honey, I had in mind those localities that formerly had a much greater proportion of wild or pasture land than now; and consequently clover (for the remarks had reference to the eastern portions of the country) would be less abundant, while grain and hay would receive a larger share of the acreage.

There are immense possibilities in the

development of some of the new plants. It remains for the experiment stations to show the possibilities so that the rancher and the farmer can put these demonstrated possibilities into good hard dollars.—Ed.]



Heads of Grain from different fields

DR. MILLER'S BOOK; THE SECRET OF GETTING SECTIONS PERFECTLY FILLED OUT.

Dr. C. C. Miller:—I have been diving into your "Forty Years among the Bees" for some time, and must confess to you I have been more than repaid the cost of the book. I am interested in comb honey, having about 30 colonies—some pure Italians—but they do not work on red clover for me. Could I possibly get a strain that will do it? I want to be able to produce section honey like the picture I see in the A B C book, page 99, evidently a picture of some one's honey. I have never been able to do any better than that on page 98 — No. 1. My bees just will not fill out the section. I am using the 4×5 plain with fences this season, and am delighted with them. I had much trouble last season in using the 4¼ and no separators with bulged comb. I am a subscriber to Gleanings, and should be more than obliged to you if you would help a Tarheel.

Charlotte, N. C. Geo. M. Phifer.

[Dr. Miller replies:]

I'm not sure that I know the exact secret of getting sections beautifully filled out, although I have produced thousands of them. I'll give you the combination, however, as nearly as I understand it: A heavy flow of nectar, a strong force of bees, the colony somewhat crowded for room. Try these three things and see if you don't get satisfactory results. The first and second are desirable conditions under all aspects; the third—well, if it takes too much crowding to get sections well filled out and sealed, I'd rather do with something not quite so fine; for too much crowding is likely to lessen the crop at least a little, although it may increase the crop of wax, making the bees plaster wax where not needed. It may also set the bees to thinking of swarming. Indeed, it is probably wise at all times to give the bees too much rather than too little surplus room; yet I have seen sections filled out and finished up beautifully when I thought the bees had abundance of room.

Yes, you can have bees that will at least do better than the average on red clover, some bees especially distinguishing themselves in that direction. And I suspect that bees that do better than the average on red clover will do better than the average on other plants. Try a queen of the red clover strains advertised — an untested one, perhaps. You may strike on one not much better, if any, than your present stock; and you may strike on one that will boost you away ahead. C. C. Miller.

Marengo, Ill.

BEE PARALYSIS, AND THE USE OF SUBLIMATED SULPHUR.

In July, 1903, I bought a select tested Italian queen from one of our most renowned American queen-breeders. I introduced her successfully, and gradually built the colony up by adding brood-combs until about the end of August the hive, a one-story ten-frame regular Langstroth, was full of bees. In September I noticed many dead bees in front of the hive, which accumulated from day to day, until in October the colony was reduced to a nucleus having only a few bees left, and the queen. I had clipped the queen as soon as I had received her, so that I could easily recognize her.

I came to the conclusion that here was a case of paralysis, and, strange to say, the only one case in a yard of about 30 colonies.

One evening I took about 2 lbs. of flour sulphur in a burlap sack, and dusted, by shaking the sack, just enough sulphur on all bees and combs so that every thing was pretty well covered with the yellow sulphur color. Then I took this hive and changed location with a prosperous hive full of bees. The next few days I noticed again a few new dead bees on the new stand, but no dead bees on the old stand. After about one week there appeared no more new dead bees on the new stand of the paralytic colony. This colony did not accumulate sufficient stores for wintering. I fed with plenty of sealed honey.

This spring, when I examined the colony in February it was weak, reduced to about two frames of bees and little brood, There was plenty of honey left. May 11 they are doing better, having some five combs of bees and brood. I do not notice any more new dead bees, so the disease seems to be gone.

I reared two young queens from the above queen, which are doing fairly well — about as well as any average colony in the yard. But I am afraid of this stock, and will discard it by requeening.

The colony which I put on the place of the paralytic colony in the fall of 1903 had a Carniolan queen bred to an Italian drone. This colony never showed any sign of disease, of which I was afraid on account of the change of position. It wintered well, and came out this spring as one of my best colonies. Otto Luhdorff.

Visalia, Cal., May 11.

[I would not advise keeping the queen of a paralytic colony. I think we have pretty good proof that this disease is somewhat hereditary; and if the queen is retained she is liable to transmit it to the bees, even after they have been cured by sulphur. To breed from such a queen is only increasing the risk of its being spread to other stock. —Ed]

THE FIRST SHALLOW HIVES.

In all the various articles that have appeared recently in GLEANINGS on "shallow hives" I have not seen any mention of the Stewarton hive as made and used in Scotland fifty years ago. This seems to me to be the old original, and must have been in use years before Mr. Heddon and Mr. Danzenbaker brought out their hives. I should fancy that Mr. Heddon had gotten his idea from the Stewarton, and had improved on it to suit the more modern ideas and needs. The original Stewarton was octagonal, about 14 inches in diameter, 6 or 7 inches deep, and 2 or 3 body boxes were used, with as many supers of 4-inch depth as might be required; and as movable frames were hardly known then, bars only were used. Later on the hive was improved, and it was made square with frames; but the principle was the same. These square ones were often made ornamental; but this was at a time when bee-keeping as a business was scarcely thought of — at least in the old country — and bar-frame hives were used only by the few, while the still older-fashioned straw skep was the only hive used by the many.

A description of the Stewarton hive may be found in "Hunter's Manual," or "The Apiary," by Neighbour, both published in England some thirty years ago.

CHAS. E. NORTON.

Moncton, N. B., Canada.

[Some eighteen years ago or more, there was considerable discussion about shallow hives. At that time the Stewarton hive was referred to quite frequently. It is described and illustrated in Cheshire's Bees and Bee-keeping. But the first shallow hives were in use long before the Stewarton. They have been used in Germany for centuries. The Stewarton hive, though, differed from the Heddon and the Danzenbaker in that it did not have movable frames — only bars.—Ed.]

A VIRGIN QUEEN FIVE MONTHS OLD.

As a bee keeper and a reader of GLEANINGS, allow me to put a few facts before you. Out of a batch of young queens I made in January, there is one which is not yet laying. I have always noticed that, from her wedding-flight, the copulatory organ was still attached to her body; and week before last I caught the queen and drew out the appendix to see if she was going to lay after three months' time, and till now she has not done so, though she looks as lively and well formed as the others. I think I'll have to kill her.

I read in GLEANINGS that the honey crop in California and Cuba is a failure; but in a long experience with bee keeping in Cape Haiti I haven't seen such a bad year. We had to feed all weak colonies in May, when last year at this time honey was coming in freely, and we were making our fourth extracting (our season lasts from the middle of November to June or July)

The frame of brood of Mr. Victor, p. 387, is not a wonder in Haiti. I can say it is the rule, for most of our queens are from your stock.

J. BAPTISTE.

Cape Haiti, Haiti, W. I., May 14.

[As a general thing, virgins more than three weeks old will never lay. We are in the habit of killing off any that will not lay inside of two weeks. I think we may conclude that a virgin five months old is structurally imperfect.—Ed.]

PARIS GREEN ON COTTON KILLING BEES.

Can you give me some advice as to the effect poisoning cotton with Paris green will have on bees? Will it affect the honey?

There seems to be considerable excitement in the boll-weevil district of Texas over the practice of poisoning cotton with Paris green to exterminate the boll-weevil. Bee-men in general think it will also exterminate the bee business. I thought you could probably tell me something about the result of this, as I notice a great deal of writing on the subject of poisoning fruit-trees in the North. It seems from what I can learn that it invariably kills the bees that go to those orchards in reach of nectar.

J. M. DAVIDSON.

Ditto, Texas, June 7, 1904.

[If the cotton is in bloom at the time the Paris green is applied, it will kill the bees by the wholesale. Perhaps you can induce the cotton-men to spray on certain days, and then confine the bees on those days with wire cloth, if it is possible, until the spraying is over and thoroughly dry. A good deal will depend on how strong the planters use the Paris green; but the presumption is, it would have to be used as strong as it is on fruit-trees; and if so it will kill bees in the same way.—Ed.]

A BEE-CELLAR FOR ARKANSAS — HOW TO CONSTRUCT.

I am intending to build me a cellar this summer. Our land here is a light sandy soil with a red-clay subsoil. When we have a good deal of rain the water will rise in the cellar. Will you or some of your readers give me a good cheap plan for making a cellar that will stay dry? I should also like to know what kind of clover will be best suited to that kind of land. What do you think of wintering bees in a cellar where the temperature in winter ranges from summer heat to 6 below zero? The weather is so changeable that bees consume a great amount of stores.

G. F. HATCH.

Belleville, Ark., June 6, 1904.

[With your conditions you had better by far not make any cellar at all. Weather below zero does not necessarily affect bees wintered outdoors. It is the continued extremely cold weather, without any flights at all for four or five months, that is hard on bees wintered outdoors. You had better winter outdoors in double-walled hives. Your bees will then come out fresher and stronger. If water has a tendency to rise in the cellar, the only way is to put in a good-sized drain around the wall, and leading from the cellar to a drainage point below the bottom of the cellar.—Ed.]

DO LIZARDS KILL BEES?

Is it customary for lizards to eat bees? I was viewing with great pleasure the first flight of my bees on a fine day, the 3d of last April, when out from under a hive slipped a lizard at least a foot long, and at once pitched into the thickest stream of the happy little fellows, devouring them in great haste. The bees seemed not to pay the least attention to the wide-mouthed monster. I called my boy, who went after the despoiler, literally with a "sharp stick." Please give me some light on this enemy of my pets. J. N. J.

Arcata, Cal., May 4.

[I have seen lizards in some of the California apiaries. They appeared to be very tame, and inoffensive. Possibly the reason of their being so tame was because of their being well fed. As a general thing, California bee-keepers regard them as harmless or as a curiosity rather than an actual damage to their interests.—Ed.]

POPPIES—A WARNING.

I see on p. 499 a letter from J. A. Leonard, asking about sowing an acre of poppies. Now, Mr. Editor, if he has poppy seed to sow an acre, I hope he will not lose one seed, but burn it. I was raised on a farm in the eastern part of England, the finest farming country in the world, but it is cursed with the poppy. The grain-fields would be entirely destroyed by it. Day after day when I was a boy I pulled poppy, and it almost gives me the headache now to think of it. If any one else asks you about poppy, say *no!* H. Manning.

Raysville, Ind.

[We have had other reports going to show that the poppy— that is, the kind that produces opium — is injurious to bees, to say nothing about the misery and degradation it brings on the human race.—Ed.]

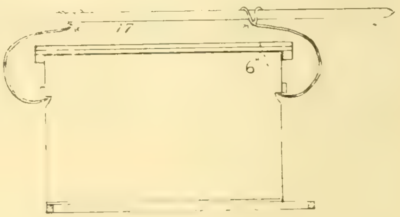
THE HOFFMAN FRAME.

I have just read what W. Z. Hutchinson and others have to say in the last issue of the *Review* regarding the Hoffman frame. I can't agree with them that it is not a good frame. In warm weather I can pick my frames out of the hive with my fingers without the use of any tool. Frames should not be handled in cold weather as a rule, any way. I agree with Mr. Green in not being friendly toward the division-board as you made it a few years ago. It is soon pulled to pieces. In theory it is all right, and would be all right in practice if no bees were ever allowed in the hive. Hives I would rather have with corners halved together than the lock corner, on account of being more readily kept together at the top corners. Harry Lathrop.

Bridgeport, Wis , June 8.

A SIMPLE, CHEAP, AND EFFECTIVE HIVE-CARRIER.

I send you a sketch of a hive-carrier that I made. I took a fork-handle and bent some irons in the shape here shown, and sharpened the ends to hook in the hand-hole of the hive. I make the handle long or short for one or two men. The staples in the handle should be 17 inches apart for a Root hive, and 6 inches from staple to the end of the hook. You can lift up, carry, and set a hive down and not disturb the bees. I carry mine with one hand: have the handle long, and a man can walk with ease at each end. F. W. Howe.



Baldwinville, N. Y., March 28

TWO QUEENS IN ONE CELL.

Under Heads of Grain I find that a writer claims to have found two queens in one cell. You request your readers to report if any thing like this has happened to any one else, so I will let you know what I am able to say from my experience. Some weeks ago I took queen cells from a hive which had swarmed a few days before. Among these queen-cells I found one which seemed to be but one only, but it contained two queens, and these queens were separated by a very thin wall Practically there were two cells; but, connected together, they looked like one. Probably the queen-cell in question was constructed in the same manner.

Bro. Alphonse Veith, O. S. B.

St. Meinrad, Ind., June 8.

SAPOLIO FOR REMOVING PROPOLIS.

I notice on page 554 Mr. S. G. Kilgore says he has used sapolio for removing propolis from the hands, with success. I wish to say the same Yes, I think there is nothing better than sapolio for removing this objectionable material from the hands, and it does it quickly too.

Washington, D. C. H. F. Carl.

BEES ON SHARES; NO WRITTEN AGREEMENT; TROUBLE BREWING.

I am expecting to have some trouble with a man; the trouble arising from a few bees on shares — not just that either. He had a few bees. I bought a few near him, with the agreement that I should see to his bees when I came around. He, in return, was to hive any swarms that might issue in my absence. There was no written agreement, as I thought he was a gentleman. Since then, he has claimed part of the honey my bees made, which I gave him, but decided to get my bees on some one's premises other than his, which I did, but he now claims that I have taken a part of the bees that he was to have for the keeping of them.

What I wish to know is this: Should I ask the bee-keepers to help me if he should sue? I have been poor, and have not joined the National, but will join if I can get help should I *need* it. I would rather take the bees back that he contends for, and give them to him rather than have trouble with him. J. B. O.

[The keeping of bees on shares without a written agreement very often leads to *dis*-agreement. As I understand the situation your neighbor was to hive swarms from your bees in your absence to offset your labor of looking after his bees in *his* absence. Your neighbor assumed that he was to have half the bees and half the honey, and you, on your part, rightly assumed that the proceeds from each lot of bees were to go to the owner of each lot. No court could hold or would hold that you are in duty bound to give your neighbor the lion's share. If your labor more than offset the labor of the neighbor, then he could claim nothing in the way of bees or honey from your colonies. If I have stated the facts correctly, I would contest his right to appropriate your bees or any part of them, for it is not always wise to give a man every thing he asks. To do so works an indirect injury to society, in that he will be bold to "claim the earth" with every one, and it may be necessary to teach him a lesson.

The moral of this whole thing is that there should be an agreement in writing; talk over the general plan of division in the first place if there is to be any, and then if you can not agree no harm is done. The National Bee-keepers' Association could not help you, probably, even if you were a member *before* the trouble began. In no event can it render aid in a case where defendant joins the Association *after* he gets into trouble.—ED.]

A LITTLE CITY, DOOLITTLE AVENUE.

I have just visited the famous queen-rearing yards of Mr. J. P. Moore, Morgan, Ky., and certainly they are worth visiting. He has about 500 nuclei of three frames each for testing and keeping his young queens. He also has some 25 full hives for his queen-mothers and brood-rearing All his stocks are of the purest and best Italians, selected for the most desirable qualities in bees. They are gentle, first-class honey-gatherers, beautiful in color and form, uniform in markings, and are bred to the highest standard of bee culture. Mr. Moore raises his queens in queen-cups, by the Doolittle grafting method, drawn out by full colonies. A queen which the bees are about to supersede is placed in the same colony, where he has his queen-cells finished. Mr. Moore claims that bees in this condition will build better and larger cells, and supply the queen larvæ with more royal honey than when they are queenless.

He exhibited bars of queen-cells with 16 to 18 in each row that, for size, beauty, and uniformity I have never seen equaled. The young queens from cells so constructed are long, yellow, and produce bees that stand at the highest grade as honey-gatherers. He sold last year over 2000 queens, and his orders this season are larger than ever before. His great city of hives and nuclei is beautifully located south and east of his residence, and laid out in streets and blocks like a human city. The main avenue, running east and west, is called Doolittle Avenue, and the view from either end is just grand. Fields of white and red clover stretch away to the verdant hills. He has Italianized all the bees kept by others for miles around, so as to secure purity of his queens. He is a genial Christian gentleman, and welcomes a visitor to his home with true Kentucky hospitality. My visit will long be remembered.

Walton, Ky., June 6. L. JOHNSON.

HOW TO TREAT HONEY THAT PERSISTS IN CANDYING IN 40 OR 50 DAYS.

Here in Southwest Texas we have very fine honey, but we have a great deal of trouble with it on account of its granulating so quickly. We have a big demand for comb honey packed in 60-lb. cans with 8 inch screw-top. I think I understand the process of heating in order to keep it from sugaring, but that is not a success with us, for it keeps it only about 40 or 50 days, which is not sufficient time. Is there any way I could use glucose in the honey to prevent sugaring? I do not wish to use the glucose in order to cheapen the honey, for glucose would cost as much here as I could get for my honey; and I would state on my labels that the honey contained glucose in it for the purpose of keeping it from granulating.

If you know of any way to keep honey from turning back to sugar, say for 90 days, kindly let me know. J. N. LONG.

Pearsall, Tex., June 9.

[I would advise bringing the honey up to a temperature of 130 or 140, and keeping it there for several days. A temperature of 160 for a few minutes would not be nearly as effective. If you can keep the honey at 140 over night you will find the results probably more satisfactory. In case long-continued low temperature does not keep the honey liquid a sufficient length of time, put in two or three per cent of commercial glycerine. Do not use glucose, as you will ruin your trade if you do; and, besides, 25 or even 50 per cent of glucose would not prevent granulation.—ED.]

SHALLOW HIVES FOR BROOD-NEST AND SUPER; HOFFMAN FRAMES AND FENCES; CARNIOLANS AS HONEY-GATHERERS.

Mr. Root:—I have seen a good deal lately about shallow hives and several other things of much interest to me, as you know your firm has made a good many shallow hives for me, and I have now over 1200 in use. They are of the six-inch depth. You seem to think it impracticable to use the same depth both for sections and brood-nest; but I assure you it is not, however, in connection with the ordinary inside furniture of supers, as I use it. Simplicity is its main feature. A narrow tin strip is nailed to the inside edge of the ends of the hive. This is for the slats to rest on. A thin board is used at one end to tighten up the ends of the fences. Twenty-eight 4×5 sections are put in a super, and a half-inch board fitted down inside the wood rabbets. This completes the arrangement for comb honey, and I know it is simple and good. Two fences are used each side of the super, or ten in all. As a section-honey getter none excel this simple and inexpensive super; and with a strong brushed swarm in a hive of the same size it is hard to beat. I indorse fences. Shallow hives are the ones for me in producing extracted honey. They are of equal value. I have had much experience with many kinds of hives.

I see that a good many condemn Hoffman frames. I do not see how any intelligent specialist can waste time with unspaced ones. True, they are not perfect; neither are those who condemn them. Propolis is bad in this locality, but unspaced frames are worse. I see smokers come in for a share of criticism, and I think it is true that they are not fastened strongly enough to the bellows-board. One tack is not sufficient in the valve leather, and the curved snout weakens the force of the blast. With me the Crane is the best. Straight-blast Bingham is also good.

Mr. Crane's article on the importance of getting bees started right struck me very forcibly. For over two years I have had one yard of pure Carniolans, and they are said to be bad to swarm; and with the idea of counteracting that tendency I have worked to get them started off at honey-gathering with a vim before the time for swarming came on; and the result has been that, though last year was bad for swarming, yet only 18 swarms came off, and this year not one; and the good thing about it is, these bees are noted as being the most wonderful honey-gatherers in the whole country, working very freely when others are doing nothing, and I believe it due to the proper starting they always get.

Yes, I think excluders always hinder the work of the bees, some to a much greater extent than others. I do not use them either on extracting or comb-honey hives.

J. E. CHAMBERS.

Vigo, N. M., June 12.

[W. K. Morrison has for some time advocated making the hive and super of the same depth for the sake of convenience and simplicity. Our friend Mr. Danzenbaker tried it on quite an extensive scale, but finally abandoned it, making the brood-nest about a half deeper than the super, and he feels satisfied that better results are thus secured. But if you use two hive-sections for a brood-nest, the same as advocated by Mr. Heddon and Mr. Hutchinson, you would probably obviate some of the objectionable features.—ED.]

HONEY VINEGAR; SOME INTERESTING PARTICULARS CONCERNING IT.

That analysis is not conclusive. Vinegar-making depends entirely on perfect conditions, whether all fermentation of sugar be finished before the fermentation of the alcohol into vinegar is started, or whether the fermentation of sugar into alcohol and alcohol into vinegar was going on at the same time, which always causes a great loss. Very often even a third kind of fermentation is going on at the same time, by which the vinegar is changed into carbonic acid and water. This fermentation is generally caused by germs of decayed organic matter.

To obtain the best results in vinegar from the fermentation of sugar, especially honey, it is absolutely necessary that the fermentation of honey into alcohol be perfectly finished before the fermentation of the alcohol into vinegar commences, and that no destructive fermentation be present at any time—indeed, that no two kinds of fermentation be taking place at the same time. If the different kinds of fermentation are kept absolutely apart, then the quantity and strength of the vinegar finally obtained will depend absolutely on the quantity of the sugar started with, no matter whether the original was pure honey or sugar.

I do not intend to criticise the doctor; but his short Straw might mislead some parties, although he, no doubt, is perfectly acquainted with the matter.

OTTO LUHDORFF.

Visalia, Cal., May 20, 1904.

OPEN-AIR FEEDING SUCCESSFULLY PRACTICED BY AN EXTENSIVE BEE-KEEPER.

I see that great caution is given against open-air feeding. I also notice how the veterans and others have lost by open-air feeding. Why is this? I have built up hundreds of colonies by open-air feeding, and never yet have lost one by so doing; in fact, it is the only proper way to feed an apiary. Yes, there goes Dr. Miller up on a jump, and tells the boys to look out with that big open-air feeder or the strong colonies will get the most of it. Well, of course a strong colony will get more than a weak one; but what if it does? The more fed, the more brood, and then take from the strong to help the weak ones. Your feed does far more good if fed in the open air, and not a tenth of the labor or time is occupied. It takes me about half an hour to make up feed and feed 400 colonies by open-air feeding; and then what a nice sight to see bees coming and going from every hive in the apiary! Mr. A. I. Root said to me while he was at my home, "Why, Mr. Woodward, your combs all seem to be fine and perfect." Those same combs were all built from the open-air feeder, all drawn from full sheets of foundation, at a time when there was no honey coming from the field.

In this country one can not afford to have his combs all drawn out at the expense of the honey harvest; and just think of having to feed from 400 to 500 colonies of bees every day for three or four months, one colony at a time. But there is a right way and a wrong way to do any kind of work. With my system of open-air feeding I feed at any time of day. When I'm running high-pressure feeding I keep the great feeder full all day long. I usually feed about 1000 lbs. a day, sometimes more; and the feeder should never be placed in the apiary — always a few rods away. The results will be much better. One can stand and see the bees throw a fine spray through the air as they go to their hives. This is the evaporation of water from the sugar.

C. E. WOODWARD.

Guanabano, Cuba, June 14.

[We used to practice, some years ago, outdoor feeding, but with a very low grade of sweet, much diluted with water. I feel satisfied that a veteran like you can feed diluted honey in the manner you describe; but the average beginner, and perhaps experienced bee-keepers, too, who are located in town, would do well to practice feeding only with the individual hive. This is an important subject, and we should be glad to hear from our subscribers who have made a success or a failure with the plan. —ED.]

A SWARM THAT BECAME CROSS ON BEING DUMPED.

For the first time in hiving a swarm of bees I had to run for shelter, and stay 20 minutes. The swarm clustered on a horizontal limb 8 ft. from the ground. To reach them I placed a low step-ladder, then with a large galvanized pail held under the bees I struck the limb with a club and dislodged half of them. Most of them fell into the pail, and some dozens on to the hand holding the pail. They did effectual work on that hand, and tried their best at my head, but that was protected. The onslaught was so great I had to beat a retreat. The bees had clustered but a few minutes when I attempted to hive them. My theory is that the anger of the bees was caused by hunger. The mother-hive is a two-story chaff. The bees covered the front of the hive both night and day for nearly or quite two weeks. When they swarmed, the hungry ones from the front, and the full ones from the inside, made the swarm. The bees are a mixed race, black blood prevailing. The bees I caught in the pail I put on the hiving-board. All the bees entered the hive at their leisure. W. YOUNG.

Palmyra, Neb., June 20, 1904.

[It is not at all probable that the bees were cross because of hunger. Any swarm hanging on a limb may be made cross if suddenly dumped. There is one thing I will not do if I can possibly avoid it; and that is, to get directly under a swarm so that the bees may lodge on my hands or clothing. Very often I find that a swarm suddenly jarred from its position into a hiving-box will become quite enraged — especially so if the bees are hybrids. To avoid an onslaught I usually blow a little smoke, when possible, on the outside of the swarm, and then give it a jar, when all will be well.—ED.]

DO QUEENS MATE THE SECOND TIME AFTER LAYING?

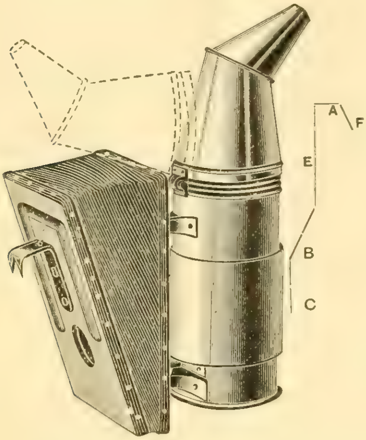
I notice some of the writers for GLEANINGS tell about clipping queens' wings. I have done it with good success. Some say queens mate just once, for life, and in one of the late issues of GLEANINGS some one told of queens mating more than once. But I don't see where there is any possible chance for them to mate more than once if their wings were clipped, as that would make them useless if it is common for them to mate a second time. J. STINE.

Sigourney, Iowa, June 20, 1904.

[Queens do not mate the second time *after laying* — at least there has been no good evidence offered that goes to prove that such mating does take place. The item you saw does not refer to mating a second time after laying, but mating *before* any eggs were laid. You probably misread the item. On page 602, June 15, you will find further evidence along the same line.—ED.]

MAKING THE BEE-SMOKER AUTOMATIC.

Mr. Root:—Do you know you have the hook on the wrong side of the smoker? When you hang the smoker on the edge of the hive, the nozzle turns away from it, and the smoker does not do you any good until you pick it up, turn it around, and blow; then you have to turn it around again and hang it up before you can have both hands free and proceed with your work. If the smoker hangs on the windy side of the hive, the wind blows into the nozzle, stops the draft, and eventually will make the fire go out. These things always troubled and annoyed me until I devised and attached a hook to the fire-pot, as shown in the accompanying cut. This hook is made of strap-iron, one inch wide and scant $\frac{1}{12}$ inch thick.



It is fastened to the fire-pot with two rivets at B and C. The top of the hook should be two or two and a half inches below the orifice of the nozzle; and the end of the hook F should be cut off square, and filed smooth to prevent it from catching in clothing or scratching the hands. The lower part of the hook, B-C, should be shaped to fit the fire-pot.

You do not need any clockwork or complicated machinery to blow your smoker. The wind does it, and there is generally wind enough for that purpose. Hang the smoker on the windy side of the hive, and you will have a gentle stream of smoke blowing continuously across the top of the frames. This keeps the bees quiet and out of the way, and prevents stings on the hands, these being more or less in the smoke nearly all the time. I have worked the whole day performing all the usual spring manipulations without getting a sting except when I happened to pinch a bee. When it is necessary to blow *downward*, just tilt the smoker a little without removing it from its place. For this reason the angle at *a* is made flaring, so that it will not pinch on the edge of the hive. I seldom handle the smoker from the moment I open the hive and first drive the bees down until I am through with my work and put the cover back on the hive.

For your new-style smokers the hook might be shortened and attached just below the hinge; but the long upright part, *e*, should be far enough from the fire-pot to prevent the heat from blistering the paint on the hive. Try it and be convinced, and delighted.

I have left the old hook on the bellows, as it is sometimes handy in other ways, but it could be dispensed with.

WM. MUTH-RASMUSSEN.

Independence, Cal., May 16.

[I have always felt that the hook should be on the front side of the smoker, but did not feel like having it riveted permanently to the front of the cup under the snout, as it seemed to me it would bring the smoker-barrel jam up against the end or side of the hive, scorching it badly. As we ordinarily use the hook attached to the bellows, the smoker is not hung next to the hive but from a tool-box and hive-seat combined. As thus used, the hook on the bellows is in the right place, and does away with all danger of burning or scorching the hive.

You have bent the hook, though, as per your sketch, so as to hold the smoker away from the hive; but if we were to attach the hook permanently to the smoker-barrel by means of rivets, some would complain, as they have no use for hooks of any kind — even if you would pay them to use them. Therefore we send a loose hook inside of the fire-cup, leaving the purchaser to attach it or not, just as he chooses. He can rivet it to the front of the smoker-cup if he prefers it that way.—ED.]

IS IT ALFALFA OR SWEET CLOVER?

What kind of clover is this I send you? Is it the genuine alfalfa? It was found along the Ohio River near a little town called New Matamoras, Ohio.

Friendly, W. Va. SAMP. WILLIAMSON.

[The sample of clover has been examined. In young plants it is difficult to distinguish between sweet clover and alfalfa. When they are in blossom, however, or have grown to be of considerable size, they show quite a marked difference. I hardly think there is any alfalfa growing wild along the roadsides or riverbeds in your locality, so that what you send is probably sweet clover. If it has white or yellow blossoms in July or August you may be satisfied it is sweet clover. If the blossoms are of a deep violet, then unquestionably it is alfalfa.—ED.]

HOUSEHOLD AMMONIA FOR REMOVING PROPOLIS.

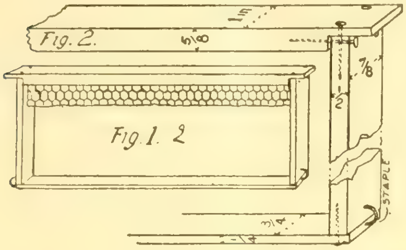
I notice Mr. Kilgore's letter, June 1, mentioning sapolio as a remover of propolis. Did you ever use ordinary household ammonia? A dilute solution of this will remove propolis from the hands just as he says sapolio does—as by magic. Very little rubbing is required, the action of the ammonia solution apparently being that of a solvent. Try it. CHARLES E FRICK.

Philadelphia, June 6.

COGGSHALL'S BROOD-FRAME WITH END STAPLES.

Stapling frames is important, for, even with men who move only once an hour, I have yet to see one who will take out half the frames of any hanging frame, without killing or maiming some bees. A man could, with great care and a steady hand, take out a set in five or six minutes, possibly, without maiming bees. Mr. Root, you just paint the end of a set of frames and put them in a hive and take them out, and see how many times you hit the end of the hive while handling. Paint will show on hives. But not necessarily does it kill a bee, but maims it. No one, while raising a barn, would like to stand near the side of another building. You can't shake off a frame of bees inside of the hive half way down without killing five or ten bees unless you have a staple or nail in the lower end of the frame. When you had a cut made of my frame, and the engraver put the staple so it shows up in under the top-bar, I was disgusted. I am not always right. Some would not have the staple, I suppose, except in the upper corner. W. L. COGGSHALL.

West Groton, N. Y.



[Unless our artist has something more than a rough diagram to work from he is liable not to make the finished picture correct in every detail As he has submitted the new drawing to you, and secured your "O. K.," we may assume that this one is correct.

As you work shaking the frames, the staple at the bottom corner is almost a necessity—indeed, a necessity for every one who shakes in the hive. It can be attached to any hanging frame, including the Hoffman.—ED.]

BLEACHING THE DARKEST YELLOW COMBS WHITE.

If the man asking for a plan to bleach comb honey will follow these directions he will be satisfied to his heart's content, for the darkest yellow combs can be made perfectly white. The worst class may need two treatments, but all yield.

Dig a short trench; set over this two empty hive bodies. On this, place about seven supers of honey. For bleaching, take half a teacupful of sulphur; put it in an iron plate or piece of tin; put it in the trench under the hives and light it, almost entirely closing the entrance, and allow the fumes to pass up through the honey. It should remain at least two hours, then place the honey in a strong light, or even the sun, if the air can circulate well. I have a tier of shelves in the open yard, with mosquito netting thrown over it. L. J. TODD.

Mariel, Cuba.

THE FOUNDATION FROM THE GIVEN PRESS.

In GLEANINGS for May 1 you ask if our Given foundation-press still works satisfactorily. It does. We make all of our own foundation, and also for other bee-keepers in this community. They like the foundation. We make better than that made with a roller mill. Of course, it is slower work, but we have the advantage of being able to leave a margin of ¼ inch at the top end which is not corrugated, thus making it easier to fasten the foundation to the top-bar of the frame.

As to the extractors, they are of about the same gear. Each is a ten-frame extractor, works satisfactorily, and runs easily.

White clover is rather late this year, but it promises to be good, and the workers are ready and willing to gather the nectar. Our loss last winter was very small.

LOUIS C. KOEHLER.

Tisch Mills, Wis., June 15.

HEE-HEE!
HEE-HEE!

"He laughs best who laughs last."

OUR HOMES,

BY A. I. ROOT.

I am come that they might have life, and that they might have it more abundantly.—John 10:10.

Not only is our text a beautiful thought, but it is most beautifully expressed. Jesus is contrasting his life and his mission here on earth with the lives of thieves and robbers, who live only to trouble and distress the honest hard-working people. *His* life and his mission were to give humanity "life" in the truest sense of the word; and not only that, but to give it *more* abundantly to those who have already a fair amount of health and happiness. It is as true today as it was then that all *real* life and happiness come through showing forth to the world the spirit of Christ Jesus. Christian nations are always in advance in bestowing health, happiness, and peace on their people.

Mrs. Root and I have been having a *very* happy time for the past two weeks here at the "cabin in the woods." In writing home to the children a few days ago she said something like this: "Father is enjoying himself intensely; in fact, if he gets much happier I hardly see how he will live."

Dear friends, I have been and am exceedingly happy; and this Home paper is to tell how you may, at least to some extent, share this same happiness. I rejoice the more in it because we have no high-priced surroundings. Ours is an *exceedingly* humble home. We have no expensive clothing, and our daily food is hardly up to the average farmer's table.* We have, however, an abundance of beautiful pure air—I call it the finest in the world, that is, so far as I have "sampled" the world. To get the full benefit of it we still live in the original "cabin" that is so well ventilated it is almost like living out of doors. Our good friend Terry is still hammering away in the Philadelphia *Practical Farmer* in regard to the importance of a *great lot* of outdoor air. Why, he is almost *thundering* it in people's ears that they are sick and ailing *because* they sleep in rooms with the doors and windows shut, and that they would most of them *get well* if they would let drugs alone and just live and sleep *outdoors*.

When in Medina I take my after-dinner nap in a large airy basement. I noticed long ago I always got up with a bad taste in my mouth unless the windows were open on both sides of the room, and even then there is apt to be a little of this and other symptoms of indigestion unless there is a good strong breeze through the apartment. Terry says, and I think he is right, that all the talk and notions about "sleeping in a draft of air" are pure nonsense, or would be if folks were only *accustomed* to a breeze day and night.

Well, as it has been rather cool here I have been taking my naps in the cabin with the doors and windows open; but Mrs. Root insisted that the hammock in a group of maples just above the cabin, on a hill overlooking the bay, was a much better place, and asked me to experiment carefully and note the difference. I did so. Sleeping in this cool breeze from off the great Northern Lakes is really a *wonderful* invigorator and appetizer. That last word is important. I now eat fruit, vegetables, and any thing that comes handy, like all the rest of the world. Of course, I work every day and do some pretty hard work. One reason why I am happy is that my strength holds out, *almost* from daylight until dark. We not only have this great abundance of pure air, but we have a running stream of pure spring water right at our door. Hot water just now is a "back number," but I drink *great quantities* of cold water — perhaps more than I ever drank before — that is, while I am hard at work *out of doors*.

Now, this isn't all. Pure water and pure air in great plenty are grand; but *I* think we want lots of *sunshine* also. My clothing up here in the woods is of the lightest description, so I get the sun pretty well almost all over my body all the time; but I am going further. When I get warm and sweaty I make a little inclosure of empty potato-boxes and a strip of canvas so I can sit right in the sun, say at 2 o'clock, entirely divested of every thing. "Get sunburned?" Oh, no! for a light hose, carrying this same spring water, gives me a most refreshing shower bath. After you get a little used to it, water at from 70 to 75° is very much more refreshing than any thing warmer. Our spring water comes through iron pipes mostly on top of the ground, and the sun on these pipes warms it up just right for a bath in the middle of a sunny day. It is nice for drinking, nights and mornings, so we keep a pail of it on the north side of the cabin for the middle of the day.

Now, physical health and strength, while they *should* fill our hearts with thankfulness, are not sufficient to give us happiness or the "life" mentioned in our text. The thieves and outlaws may have good health; but have they the life the Savior mentions? Do they enjoy life in any such way as the honest man who works hard for the benefit of his fellows? Surely not. I have been very happy in making a flower-bed in front of the little church (see p. 557 last issue), and I have been happy in working for others (instead of self) in many ways. I have also been happy in looking after my plants and trees that I had not seen for about two months. I am testing different things on these sandy hills. We have eight varieties of currants, six of gooseberries, about as many blackberries, some English filberts, the improved large chestnuts, besides peaches, plums, etc. Some of the peaches were hurt by the severe winter; but apples, pears, plums, and cherries stood it apparently unharmed. Apricots thrive amazingly. Insects never trouble them, and they are earlier than any peaches, and, *I* think, more delicious. I can not see why they are not more generally grown in this region. On one of our steep side-hills, where the white sand almost "runs" down hill in a dry time, we planted some rhubarb, or pie-plant. The ground looked too poor and dry to grow any thing; but this spring we found the largest, finest, and most luxurious growth, without any manure, and almost *no care.* The leaves are a yard across; the stalks a yard long, and big enough so one makes a pie. It needs experimenting to find what crops are suited to this region, and it is this experimenting that I enjoy.

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* For a man's life consisteth not in the abundance of the things he possesseth.—Luke 12:15.

A "HOME" ON FIRE.

While our neighbor Hilbert and his wife were in town a few days ago his house burned up. Gladys, only six years old, saw it first. She told her sister Alice, about fifteen, who was the only one at home besides the hired girl. You will remember Alice as one of my particular friends. Well, I will tell you how a girl of fifteen managed. She ran to the bell that is on a post near the house, and rang it so vigorously it turned over and wouldn't ring any more, then after being headed off on the bell she went to the telephone and yelled to central, "Hilbert's house is on fire! Tell everybody near us!"* Then she tried to carry water into the attic where the fire was, but no one could get in on account of smoke and flames, so she and the girl, only a little older, began to get out the goods. By this time men, women, and children were pouring in from all sides, and every thing was got out of the lower rooms. They might have taken some things out of the cellar; but the barn took fire several times, and took the whole crowd to save that.

Now, here are several good lessons for us all. Every home should have a good bell that can be rung by even a child, to be used in any case of emergency, besides calling the hungry men to dinner. I wish also every home had a telephone. This one saved a good-sized barn and contents. Better have your home insured also. While friend H.'s insurance ($700) does not make him good, it is a big help on the new house. Every home should have some boys and girls (God willing), and these boys and girls should be taught to bear responsibility. Could any of my fifteen year-old readers do any better than Alice did? The fire started in the attic from a defective chimney. Had you not better look over and *into your* chimney while the matter is up? If I remember correctly, more than half the fires in country homes come from defective mason or carpenter work, or both.

THE BONNIE BEE.

BY E. T. SPOTTSWOOD, M. D.

The bee! the bee! the bonnie bee,
That flits from flower and shrub and tree,
When early morning's sunlight gilds
The tree-tops on the distant hills.
Obedient to stern duty's call,
It hastes to gather sweets for all;
And, flying fast on buzzing wings,
The happy toiler joyous sings—
In busy flight speeds quick along,
And crooning hums sweet labor's song;
And, wandering o'er the meadow's breast,
One moment on each flower 'twill rest;
Now on the drooping columbine,
And then the yellow dandelion—
On feathery plumes that graceful nod,
Of the fragrant yellow goldenrod;
Then from the wild rose ruby lips
The dainty nectar sweetly sips.
The modest clover yields its sweet
To fill the hoarded store complete,
And from the linden's leaf it drew
The luscious stores of honey-dew,
And every bloom and every flower
To its caress yields up its dower.
Then when the length'ning shadows crawl,
And on the flowery landscape fall,
And setting sun's fast-fading light
Gives warning of the coming night,
It homeward wings its rapid way
To close the long and happy day.
Is it not true that even we
May learn some truths from Bonnie Bee—
To shun the bitter that we know,
And gather sweets where'er we go,
And bring the treasures we have found
To lighten up life's weary round?

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$21.95
Farmer's
Handy Wagon
Only 25 inches high. Steel Wheels. 4 inch Tires. Carries any load two horses can pull.
We furnish any size steel wheels, of any width, for any axle. Catalogue free.
Empire Mfg. Co., Box 91C Quincy, Ill.

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* Alice thinks toward forty people — men, women, and children—were there in about ten minutes after that telephone message. Bicycles flew up hill and down in reckless haste. After this last faithful service a boy knocked the telephone loose with an ax and rescued it from the flames. One of the pleasant things about a community like this is the eager alacrity with which all the neighbors rush to the aid of one of their number who is in trouble. Then is the Christian spirit, or, we might say, *Christ* spirit manifest. I am sure that Sunday-school held every week (preaching is only every other week) helps to encourage this unselfish disposition.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin=the=Queen=Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long=tongued Red=Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

Last winter was a severe test on Bees,

But Quirin's Famous Leather=colored Italians

wintered on their summer stands, within a few miles of bleak Lake Erie. . . . Queens now Ready to go by Return Mail.

Our new circular now ready to mail.

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Prices after July 1.

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Select	$ 75	$ 4 00	$ 7 00
Tested	1 00	5 00	9 00
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Breeders	3 00	15 00	
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Two-comb nuclei, no queen	2 25	12 00	22 00
Full colony on eight frames	5 00	25 00	
Four fr's brood, & 4 fr's f'd'n	4 00	22 00	

Special low prices on Queens and Nuclei in 50 and 100 Lots. Nuclei on L. or Danzenbaker frames.

Quirin=the=Queen=Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY . . . . . .

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200

Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1.50; select tested $2.50; breeders $4.00 to $7.00. Illustrated price list free for the asking.

W. O. VICTOR,

Queen Specialist. Wharton, Tex.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. LAWS, Beeville, Texas.

MY GOLDEN BREEDER

gave me 400 pounds of honey last year. Her daughters are 75c each; $8 00 per dozen.

George W. Cook, - Spring Hill, Kans.

Red Clover and Three and Five Banded Queens.

Untested, 65 cts.; $7 per doz. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $3 25. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred special prices.

G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENNA.

Virginia Queens

Italian queens secured by a cross, and years of careful selection. From red-clover queens and Superior stock obtained from W. Z. Hutchinson. I can furnish large vigorous untested queens 75 cts.; after June 15th, 60 cts.; tested queens, $1.00; after June 15th, 75 cents.

Write for discount on large orders.

CHAS. KOEPPEN,
Fredericksburg, - Virginia.

CARNIOLANS AND ITALIANS.

**Untested Queen 75c.; Six for $3.90; Twelve for $6.00.
Tested $1.25. Best Breeder $2.50. Imported $4.00.**

Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

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Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years. We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness.*

Italians.

Gentle, prolific, swarm very little, hustlers to work, and a red-clover strain.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

Doolittle Says:

"Be very choice of this Breeder; if ever a Queen was worth $100, she is." Then we have Breeders from our strain that gave the big yields in '94, and which some of the largest bee-keepers in Cuba say can't be beat. They swarm but little and are **honey-getters.** We are breeding for **honey-gatherers** more than color. We cull our cells and queens, and **warrant** queens purely mated. Prices: Select untested, $1.00; select, $1.25, tested, $1.50; select, $2.00; breeders, $3.00, $4 00, and $5 00. Circulars free.

J. B. CASE, Port Orange, Florida.

Queens by Return Mail

We are now breeding from three distinct strains, viz., Imported or leather color, Root's long-tongued or red clover strain, and our old strain of white-banded yellow Italians, or albinos. :: :: ::

JULY PRICES.

Untested, each	$ .75;	half doz. $4.25;	doz. $ 8.00
Warranted, each	.90;	half doz. 5 00;	doz. 9.00
Tested, each			1.25
Select tested, each			1.50

We have also a full line of bee-keepers' supplies including The A. I. Root Company's goods . .
Root's Sections and Weed's Foundation a Specialty.
Send for our 32-page illustrated catalog. . . . .

W. W. Cary & Son, Lyonsville, Mass.

Leather Colored Italians For Sale!

Strain took first premium Minnesota State Fair, 1901 and 1902. Ready May 1st. Eight or nine frame Langstroth hives, $5.00; ten frame, $6.00 each, f. o. b. Milaca.

**W. R. ANSELL, Mille Lacs Apiaries,
MILACA, MINN.**

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Golden and Leather-colored Italians, tested, $1.00; untested, 90 cts.; select tested, $1.50.

H. C. TRIESCH, Jr., DYER, ARK.

QUEENS! THE BEST can always be had at 75c each for untested; $4.25 for six; $8 00 per dozen. Tested, $1.50 each. Best breeders $5 each. Safe arrival and satisfaction guaranteed. **The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.**

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becomes greater each year. The following report shows the reason why:

EXCEL IN STORING CAPACITY.

B. S. Taylor, a large honey-producer of Perris, Cal., who sent me an order for 75 queens at one time, says: "I have a large apiary mostly of your stock, and I have never, in my 30 years' experience, seen so quiet and gentle bees to handle, and in storing capacity they excel anything I have ever had."

Untested queens, $1 00 each; six, $5.00; dozen, $9.00.
Select untested queens, $1.25 each; six, $6 00; dozen, $11.

**Safe arrival and satisfaction guaranteed.
Descriptive circular free.**

I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Key.

QUEENS DIRECT FROM ITALY.

Please send us your address on a postal card, and we will send you our price list of queens, written in English. Correspondence not sufficiently post-stamped will be refused. Our motto: "Whatsoever ye would that men should do to you, do ye even so to them." Write

**Malan Brothers, - - - - Queen-breeders.
"Apiario," Luserna, San Giovanni, Italy.**

"Increase" is a little booklet by Swarthmore, tells how to make up winter losses with less labor, without breaking full stocks. Entirely new plan, 25c. Prospectus free. Address

**E. L. Pratt,
SWARTHMORE, PA., U. S. A.**

DID YOU LOSE HALF OF YOUR BEES?

Then save money by ordering your stationery and honey-labels of us. Samples and prices free. It is in the doing we excel, and not in talking about it.

Young Brothers, - Girard, Penna.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Chunk comb honey during season, any quantity; cash paid. E. A. HEARN, Salisbury, Md.

WANTED.—To exchange L. Colton high-grade surveyor's compass. What have you?
F. W. VAN DE MARK, Mehan, Oklahoma.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Your experience in marketing honey, aside from trade centers. For publication in the August number of the Rural Bee-keeper. Address
W. H. PUTNAM, River Falls, Wis.

WANTED.—Comb honey for August or September delivery. Alfalfa preferred. Give price, etc.
C. L. MICHAEL, Rt. 14, Farmington, W. Va.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange catalog describing the best hive in existence, a double-walled hive for only 20c extra, for your name and address.
T. K. MASSIE, Tophet, W. Va.

WANTED.—To exchange 60-lb. cans for honey, cash, or offers. No. 1 at 40 cts. per case; No. 2 at 30 cts.
G. L. BUCHANAN,
Hollidays Cove, W. Va.

WANTED.—Partner to go in with me and enlarge my bee business; fine opportunity for any one wishing to make a start in Cuba. R. M. MCMURDO,
Cauto, Santiago de Cuba.

WANTED.—Second-hand extractor in exchange for shirts and overalls. E. BRUBAKER,
14 North Third St., Philadelphia, Pa.

WANTED.—To exchange second-hand hives, and Dorset sheep, for cane-mill and syrup-pan or evaporator. L. F WEAVER, Shadeland, Ind.

WANTED.—To exchange a Cowan extractor, No. 15, for extracted white-clover honey.
WALTER HOWE, Brookfield, Mass.

Help Wanted.

WANTED.—A practical all-around kind of man for bee work in summer, and greenhouse and shop work in winter. A job by the year for the right man. Married, and middle-aged preferred. Drinkers and smokers not wanted. Reference required. Write me. R. C. AIKIN, Loveland, Colo.

Addresses Wanted.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1 00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—Bees. B. WALKER, Clyde, Ill.

FOR SALE.—Pure female Angora cats or kittens; $2 00 apiece. A. T. RICE, Paris, Ky.

FOR SALE.—Three untested queens for $1.00, or 40c. each, from the best Italian stock. Safe arrival.
E. A. SIMMONS, Fort Deposit, Ala.

FOR SALE.—A Sure Hatch incubator and brooder, 150-egg size. A bargain. In perfect working order.
JOSEPH WUKASCH, Concordia, Mo.

FOR SALE.—A few hundred cases of 60-lb. honey-cans, good as new, at about half their real value.
J. A. BUCHANAN & SONS, Hollidays Cove, W. Va.

FOR SALE.—Damaged sections, $2.00 and $2.50 per M. Send two-cent stamp for samples.
LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

FOR SALE.—Second-hand 60-lb. cans, two in a case, in lots of ten, free from rust on the inside, and practically good as new, at 40c per case. f. o. b. Chicago.
B. WALKER, Clyde, Ill.

FOR SALE.—Five-gallon square tin can used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—57 New AE5 8 fr. Root's Dovetailed hives in flat for $55.00, or 10 for $10; also 10 new 2S 8-frame supers in flat for $3.50.
R. S. CHAPIN, Marion, Mich.

FOR SALE.—Italian bees with red-clover queen; 3-frame nucleus on Danz. frame, so you can make a start with Danz. hives, $3.50. Standard frames the same. Orders shipped immediately.
F. H. FARMER, 182 Friend St., Boston, Mass.

FOR SALE.—325 colonies of best strain of Italians in United States, in good location in Southwest Texas. Location, business, and outfit for sale at a bargain. Address for particulars C. WORTH,
Karnes City, Tex.

FOR SALE.—500 colonies of bees in Root's 10-frame hives in fine condition. Will sell in lots of 50 or upward. Also fine 100-acre farm at a bargain. Write or call quick for full particulars.
UDO TOEPPERWEIN, San Antonio, Tex.

FOR SALE.—Fifty colonies of hybrid bees on 5¼x 14¾ frames, ten frames to a section, two sections to a hive; full colonies with queen $3.50; ten-frame section $2.00, f. o. b. W. W. COOLIDGE,
Sun Prairie, Wis.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT,
Shenandoah, Page Co., Iowa.

FOR SALE.—Apiarian outfit of small house and acre of land with 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot. X Y Z, GLEANINGS.

FOR SALE.—An apiary and farm, consisting of 120 acres good grazing land, and only fifteen minutes' walk from the city of Cardenas, and on the public road; having on said place 350 hives (American system), all necessary supplies to handle these, good house on grounds, numerous fruit-trees, plenty of shade for bees, thirty odd head of cattle raised on the place, among these six fine American milch cows (Holstein stock) selling nice little amount of milk daily, good-riding saddle-horse, ox-wagon with fine yoke oxen in fine condition, two good water wells, large pine-apple grove now producing, and with capacity to plant, if required, 60,000 henequen plants. Sell for cash, or on time with satisfactory guarrantee. Address
AMERICAN BEE HIVE, P. O. Box 44, Cardenas, Cuba.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

My Stock of Supplies

is fresh from the factory, and fully up-to-date in every detail. My sections are not dried out and they do not break in bending.

What They Say.

Peru, Ind., May 23, 1904.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—Each of the many orders you have filled for me has been accompanied with a pleasant surprise in the form of promptness and precision. In some cases it has been worth many dollars to me to have goods shipped on next train. I think promptness is your strong hold. I would put it *Pouder, Promptness, Precision, and Perfection* of goods. I desire to thank you for the many courtesies you have shown me in our business relations.

Yours truly,

GEORGE DEMUTH.

⁂

Medina, Ohio.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—It seems to us, bee-keepers ought to be very glad to have such a dealer as yourself to depend upon for supplies, and we congratulate you.

Yours truly,

THE A. I. ROOT CO., *per* A. L. BOYDEN, Sec'y.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

More Room

We now occupy the greatest floor space, and carry the largest stock of goods, that we ever did before. Our specialty is

Wholesale and Retail
Lewis' Goods
AT
Factory Prices.

Dovetailed hives, Wisconsin hives, Champion Chaff hives, Improved Langstroth Simplicity hives, and our new hive which we call the Acme hive. Thousands of pounds of comb foundation; millions of sections in about 30 different sizes and styles, and everything the bee-keeper needs.

Do not fail to find out all about the
ACME HIVE.
Hundreds of them already sold, this year. Catalogs and plenty of information free. Let us estimate on your order.

C. M. Scott & Co.,
1004 E. Washington St.,
Indianapolis, = Ind.

Do You Need Queens?

If so, you want none but the best. **Prolific Queens?**—they mean large colonies. **Good Workers?**—they mean full supers. We can fill your orders for such queens by return mail, from our choice strain of three band Italians, which are not excelled as honey-gatherers. : : :

Choice tested queens, $1.00 each; untested 50c; per dozen, $6.00. *Send for circular.*

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

Italian Queens in State of Washington.

Long-tongued red-clover queens, untested, 70c; tested, $1.00; select tested, $1.50. Common Italians same price. Satisfaction guaranteed.
Robert Mirring, Dryad, Lewis Co., Wash.

BEE-KEEPERS, let me sell you the best goods made. You will be pleased on receipt of them, and save money by ordering from me. My stock is all new and complete. I handle the G. B. Lewis Co. and The A. I. Root Co. goods. Send for catalog. It is free.
W. J. McCARTY, Emmetsburg, Iowa.

BEE-KEEPERS' SUPPLIES FOR KANSAS
Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*
A. W. SWAN & CO. Centralia, Kan.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

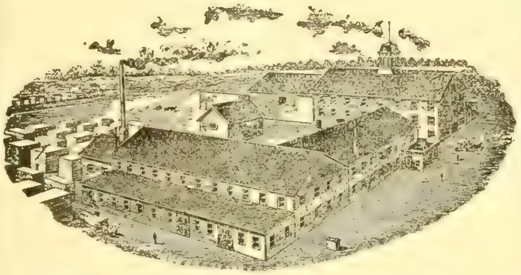
The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

BEE - SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

I. J. Stringham, New York,

Keeps in stock a complete line of

Apiarian supplies

Colonies of Italian bees in new hive	$8.50		
Three-frame nucleus colonies with Italian queen	3.75		
Tested Italian queen	1.25	Untested queen	85
Silk-faced veil, best made	.40	Catalog	FREE

Apiaries--Glen Cove, L. I. Salesroom--105 Park Place, N. Y.

NOT IN THE TRUST.

The oldest bee-supply house in the East. Sells the BEST GOODS at former prices.

Send for Catalog.

J. H. M. COOK,
70 Cortlandt St., New York City.
Tested queens now ready by return mai

Pacific Coast Buyers

are directed to the announcement that
SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California,

carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundation, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added. This saves buyers $1.50 per 100 pounds in freight or 36c on each hive.

HAGEN'S

Comb Foundation Factory

(*WEED PROCESS*).

Is turning out a grade of foundation that is not surpassed by any made, and is guaranteed to give perfect satisfaction. A share of your trade is solicited. Wax worked up for bee-keepers also. In the market at all times for beeswax at the highest market price. Samples of foundation sent on request.

H. F. HAGEN,
Denver, - - - Colorado.
601 High Street.

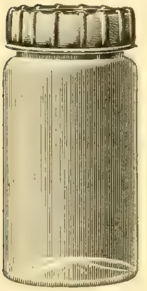
Special Notices By Our Business Manager

THE Minnesota Bee-Supply Manufacturing Co., at Minneapolis, burned out on Sunday evening, June 12, involving a total loss of $4000. We hereby extend to these people our sincere sympathy. As a general thing, a fire in a wood-shop makes rapid headway unless there are automatic sprinklers. Our shop is thoroughly equipped with them; and while they have so far never put out a fire that we could not have handled without, yet we regard them almost as a necessity, even if they are expensive. We trust our friends will be able to make a new start.

TITOFF NURSERY CAGES.

We have received a few complaints to the effect that queens reared in our regular Titoff nursery cages would die. Some thought they starved to death. Investigation has shown that the new cages for 1904 contained just enough of the soldering salts used in making to cause the death of the queens. The cages are now all immersed in boiling water before being sent out, and we have had no trouble since. We suggest that those who have had queens die in these cages immerse them in boiling water, then try them again.

NEW SIMPLEX HONEY-JAR.



We have found a new glass jar for one pound of honey, which we think surpasses any other style we ever offered. It has a glass top which screws on to the glass jar with a rubber gasket between. The joint is on a taper so that, the further you screw the cover on, the tighter it makes the joint. It can be sealed absolutely air-tight; has no metal to rust or corrode. It is about ¾ inch higher than the No. 25, which improves its appearance. We sell them at the same price as the No. 25, and have a carload in stock ready to fill orders. We first learned of this jar nearly a year ago, but have said nothing about it until we had the stock in hand ready to supply. We still have some No. 25 in stock for those who may prefer to continue with it. We believe, however, the Simplex jar will take the place of the No. 25.

Convention Notice.

The annual session of the National Bee-keepers' Association for 1904 will be held in September at St. Louis, Mo.

Sept. 27 and 28 will be devoted to Association work and its interests.

September 29, national day. We expect many prominent foreign bee-keepers to be present on this day.-

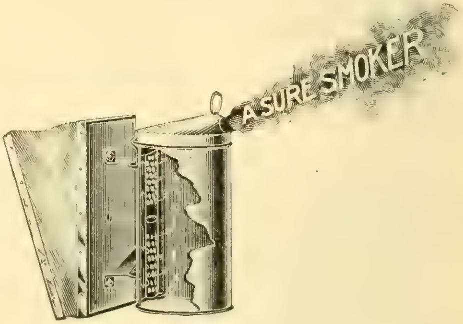
September 30 inspectors' day. Twenty bee-inspectors from the United States and Canada are counted on to introduce and discuss the diseases of bees etc.

Mr. N. E. France will exhibit, in the convention hall, a large map of the United States, Canada, Cuba, and Europe. Each State and country will have a shelf attached to the map with a one-pound sample of each kind of honey produced. Many other exhibits of special interest will be shown.

We expect to see the largest gathering of bee-keepers ever held in this country. A more detailed program will appear later.

GEO. W. BRODBECK, Sec.

DANZENBAKER
20th Century
SMOKER.
A SMOKER SURE FOR $1.00.
GUARANTEED TO SUIT, OR DOLLAR BACK.



The last in the field, combines the best feature of others, with special ones all its own.

It has a perforated draft-grate at the side that strengthens the fire-cup and holds a removable lining and packing in place, that keeps the fire-cup cool, adding to its durability. This lining can be replaced at a small cost.

The draft-hole is midway of the fire-cup, directly opposite the only opening in the bellows, from which the air is forced and deflected upward or downward, or both ways, as desired, to secure a dense or hot or cool volume of smoke, which is determined by the filling and lighting of the fuel.

It is superior in make-up and material.

It has no parts that can clog with soot.

It will continue to smoke from three to ten hours, in light work, until all the fuel is consumed.

It wins friends that willingly recommend it to others.

Full directions for use, and preparing special fuel for subduing bees and destroying the eggs and larvæ of the wax-moth, with each smoker.

PRICES:

$1.00 each; three for $2.70 when sent with other goods. By mail, each 25 cents extra.

ADDRESS

F. DANZENBAKER
Care The A. I. Root Co., Sec. 29, W. Annex, Hort'l Bld.,
St. Louis, - Missouri.

1884 **PRICE LIST OF** 1904

Italian Queens and Bees

Untested Queens, each - - -	$ 75
Tested Queens, each - -	1 00
Select Tested Queens, each - -	2 00
Two-frame Nucleus (no queen), -	1 00
Three-frame Nucleus (no queen), - -	1 50
Four-frame Nucleus (no queen), -	2 00
Full Colony, eight-frame, (no queen) -	4 00

We are booking orders for Queens and Bees at the above prices.

We breed with scientific, intelligent methods from the best Imported and Long-tongue stock. Cheaper queens may be had elsewhere, but we make no effort to compete with the prices of the CHEAP-QUEEN men. Our stock is worth our price. You will be pleased with our stock and our prompt and careful attention to your orders. **We guarantee it.**

64-page Catalog of Supplies Free.

J. M. JENKINS,

WETUMPKA, - ALABAMA.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'

SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

FIFTY YEARS

Seven original inventions. and the bees have enabled bee-keepers to supply the world with the best cheap and abundant honey.

Rev. L. L. Langstroth's shallow-chamber movable-comb frames Inventor did not improve his invention.
T. F. Bingham, closed-end movable-comb frames. He improved his invention.
Baron von Hruschka, revolving honey-extractor. Inventor did not improve his invention.
J. Mehring indented comb foundation. Inventor did not improve his invention.
A. I. Root invented foundation rolls.
T. F .Bingham, uncapping-knife. Invention has never been improved.
T. F. Bingham, continuous direct-draft smoker. Inventor has twice improved his invention.

The bellows of the Bingham smokers has double leather, and strips of wood glued and nailed, forming its hinge,—does not slip or wabble. The metal part has a shield and a brass exhaust-tube to direct the blast and protect the wood and hands from heat (*does not whistle*). The top has a cool wire handle and bent exhaust, to curve the smoke, catch the ashes and soot and fire (*a safe feature*). Bingham has made and sold thousands every year for 26 years, has never received a complaining letter, but hundreds of the most complimentary character.

Smokers are similar, but there are none like Bingham's.

Bingham has received all the bellows-smoker patents granted by the United States, four in all, but has never sold any patent rights. Bingham smokers burn any thing, and never go out ,and last from 5 to 21 years.

Prices, by Mail.

Tin, 4-inch Smoke Engine	$1.50	Doctor, 3½-inch Smoker	$1.10
Conqueror, 3-inch $1.00; large, 2½-inch	.90	Little Wonder, 2-inch	.65

Copper of the three largest sizes, 50 cents more than tin. These are our regular prices. But we make a special which we charge 10 cents more for. Uncapping-knife..........80c

——Thanking every one for 26 years of favors and respect,——

T. F. BINGHAM, - FARWELL, MICH.

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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

Entered at the Postoffice, at Medina, Ohio, as Second-class Matter.

PROMPT SHIPMENTS OUR SPECIALTY

If you want your orders filled within 24 hours send them to us. We have the largest stock in Michigan, and can ship at once.

Beeswax wanted at highest market prices.

LEWIS C. & A. G. WOODMAN,
GRAND RAPIDS, MICH.

CAN SHIP TO-DAY.

¶I have the largest stock, and the best assortment I ever had at this time of year, and can fill your order the same day it is received. I have more Hives, Supers, Sections, and Foundation, Shipping-Cases, and every thing you may need than I can possibly sell this season.

¶But don't wait, send in your orders promptly, and they will be filled promptly.

YES, THEY ARE ROOT'S GOODS

AND SOLD AT ROOT'S PRICES.

¶If you have not my 36-page catalog, send for it, free. Beeswax wanted, either for cash or trade.

GEORGE E. HILTON,
FREMONT, MICH.

Hurry Up Orders

FOR

Hives, Sections, Foundation, etc.

The supplies you order this month you want "right away"---"as soon as possible." That is what we are doing for others, let us do it for you. :: :: ::

For Root's Goods in Michigan---In a Hurry.

M. H. HUNT & SON, BELL BRANCH, MICH.

C. H. W. Weber,
Headquarters for
Bee-Supplies
Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Queens Now Ready to Supply by Return Mail; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above. **Prices for Untested, during June, one.,75; six, $4.00; twelve, $7.50.**

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,
Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

SAN FRANCISCO.—New comb per lb., nominal. Extracted, water-white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Beeswax, 28@29.

ERNEST B. SCHAEFFLE,
June 28. Murphys, Cal.

SCHENECTADY.—We have received one small consignment of new comb honey, produced just out of the city, and sold the same at 15 cts. The quality was No. 1 clover.

CHAS. MCCULLOCH,
July 8. Schenectady, N. Y.

DENVER.—No more old comb honey in this market, and new comb has not commenced to come in yet. Extracted honey, 6¾@7½. Beeswax wanted at 22@28 per pound, according to color and cleanliness.

THE COLORADO HONEY PRODUCERS' ASS'N.
July 9. 1440 Market St., Denver, Col.

BOSTON.—Our market on honey, both comb and extracted, is practically in a slumbering condition, as there is really no call whatever. Prices remain as before quoted, but are really only nominal.

BLAKE, SCOTT & LEE,
July 12. Boston, Mass.

BUFFALO.—There is hardly any demand for honey now. Some old honey is for sale, but the market price quoted would be shaded if there were any buyers. There will be a demand for new comb honey as soon as we can get some.

W. C. TOWNSEND,
July 8. 178 Perry St., Buffalo, N. Y.

CINCINNATI.—The sales of comb honey which are made now amount to but very little. Some fancy comb left from last season finds sales at 12½@13½. The new is just beginning to be offered, and small lots coming in. Extracted, for manufacturing purposes, finds a fair demand. I quote amber, in barrels, 5¼@5½; in cans, ½c more; water-white alfalfa, 6½; extra fancy white-clover, 7½. Beeswax, 28.

C. H. W. WEBER,
July 7. 2146 Central Ave., Cincinnati, Ohio.

ST. LOUIS.—The honey market has not undergone any change since our last, and repeat quotations as follows: Fancy comb honey from 12@14; A No. 1, 11@12; No. 1, 10@11; No. 2, about 9; No. 3, from 7@8. Extracted, 5@5½ in cans, and 4@4½ in barrels. Dark and other inferior grades will bring less. The arrivals of new honey are not very large; but as there is no demand to speak of, the quotations are more or less nominal.

R. HARTMANN & Co.,
July 8. St. Louis, Mo.

CHICAGO.—There is a plentiful supply of honey of all kinds on the market, with no sales; prices, therefore, can not be more than on an asking basis. Very little if any choice to fancy comb, but a large amount of what would average No. 1 is offered at 10@12; no sale for off grades or damaged lots. Extracted white, 6@7; amber, 5@6. Beeswax, 28@30.

R. A. BURNETT & Co.,
July 7. 199 South Water St., Chicago, Ill.

PHILADELPHIA.—There is little or no call for comb honey, and no sales are being made, with some few offers of new crops at various prices. There has been a big lot of extracted honey carried over—enough to carry through the season if no more were produced this season, from the present outlook. We quote fancy white extracted at 7@7½; amber, 6; southern, 5½. Beeswax, 28. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
July 8. 10 Vine Street, Philadelphia, Pa.

TOLEDO.—The market on comb honey is improving a little. The demand for new comb honey is good, and will bring the following prices: Fancy white clover, 16; A No. 1, 15. Extracted white clover, in barrels, 6½; in cans, 7; amber in cans, 6. Beeswax, 28@30. On account of backward season, there is no honey being offered as yet. However, reports show they are commencing to store honey in the supers.

July 7. GRIGGS BROS., Toledo, O.

KANSAS CITY.—We have received a fine shipment of new comb honey from the West, and find the demand about equal to the supply. We quote fancy white, 24 sections $2.85@$3.00 per case; No. 1 white, 24 sections, $2.75 per case. Scarcely any demand for extracted at present; market 5½@6 for white stock. Beeswax, 30.

C. C. CLEMONS & Co.,
July 8. Kansas City, Mo

FOR SALE.—Fancy white extracted honey, 7 to 8½c. per lb. Sample 10c.
I. J. STRINGHAM,
105 Park Place, New York City.

FOR SALE.—New crop fancy white extracted honey, in 60-lb. cans or 32-gal. barrels.
G. L. BUCHANAN, Holliday's Cove, W. Va

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.
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BUCKEYE STRAIN RED CLOVER
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By Return Mail. Safe Arrival Guaranteed.

PRICES	ONE	SIX	TWELVE
Untested	$0.75	$4.00	$7.50
Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
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Select Breeders, each $3.00
Two-frame Nucleus and nice Queen 3.00

THE FRED W. MUTH CO.,
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For Sale. Several tons of choice extracted clover honey, put up in kegs holding about 160 lbs. net on board the cars at this place, at 7 cts. per lb.
E. W. & F. C. Alexander, Delanson, N. Y.

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Emil J. Baxter,
Nauvoo, Hancock Co., Ill.

For Sale.—Extracted honey, white candied mesquite, 5½ cents per pound; amber 5 cents, in 75-pound cans, f. o. b. here.
W. C. Gathright,
Los Cruces, New Mex.

Wanted.—White-clover and amber extracted honey.
Griggs Bros., 523 Monroe St., Toledo, O.

Wanted.—Beeswax; highest market price paid. Write for price list.
Bach, Becker & Co., Chicago, Ill.

Wanted—Comb and extracted honey. State price, kind, and quantity.
R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
Hildreth & Segelken,
265-267 Greenwich St., New York.

Wanted—Beeswax. We are paying 26c cash or 28 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York City, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
The A. I. Root Company, Medina, Ohio.

Wanted.—Comb honey by the wholesale. We will buy your crop outright, cash at your depot, anywhere in the U. S., if price and quality are right. We have salesmen in nearly every market in U. S., but buy only through Thos. J. Stanley, Manzanola, Colo., our honey-man, who spends the season in the West superintending our apiaries and looking after Western car lots of honey. Address us there direct, stating what your honey is gathered from, what grade, the average weight of sections, how packed, color, etc.; quantity; when you can deliver, and lowest cash price per pound properly crated and delivered at your depot. We should like to know about what the freight rate to your nearest city is. We believe that our purchases are larger than those of any other firm or association.
Yours for business,
Thos. C. Stanley & Son, Manzanola, Otero Co., Colo.

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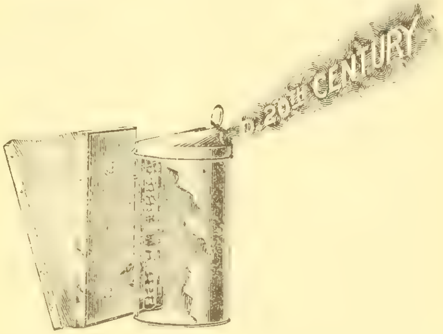

The last in the field, combiness the bet feature of others, with special ones all its own.

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It has no parts that can clog with soot.

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"The only Soap fit for the face"

Williams' Shaving Sticks and Tablets sold everywhere. Free trial sample for 2-cent stamp to pay postage. Write for booklet "How to Shave."

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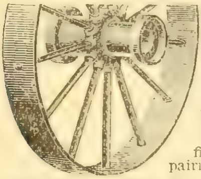

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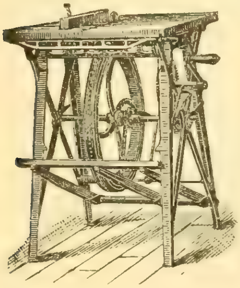

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This cut represents our combined circular saw which is made for beekeeper's use in the construction of their hives sections, boxes, etc., etc.

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Send for illustrated catalog and prices. Address
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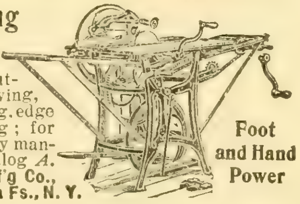

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Devoted to Bees, Honey, and Home Interests.

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To prevent the adulteration of honey.

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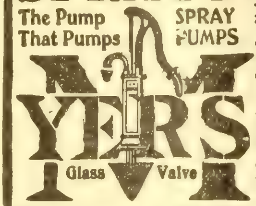

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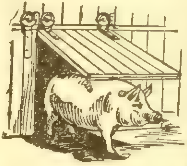

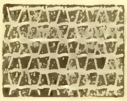

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of new **special** copper and how it pleased, and how the extra charge was promptly sent.

Stiles, Iowa, July 8, 1904.

T. F. BINGHAM, Farwell, Mich.

Dear Sir:—Find enclosed 25 cts. to balance my account. Thanks for promptness. Smoker arrived O. K. I tested it yesterday and found it the best smoker I ever used. J. H. COLLINS.

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Please send us your address on a postal card, and we will send you our price list of queens, written in English. Correspondence not sufficiently post-stamped will be refused. Our motto: "Whatsoever ye would that men should do to you, do ye even so to them." Write

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WHAT THEY SAY.

W H PUTNAM:—I delayed answering your letter until I had read the June number of the *Rural Bee-keeper*, and must say, as a bee-keeper of 22 years' experience, I am more than pleased with it, regardless of the assertions of some that the publishing in this line was already overdone; and if the improvements continue it will certainly be second to none within its first year of publication. I consider the June number alone worth several years subscription to any practical live bee-keeper; and I will say, let the good work go on and on. You have a good field; and the fact of our having a bee journal published in our own State should be a lasting stimulant to all bee-keepers of Wisconsin and the Northwest, and 50 cents certainly can not be invested to better advantage. You may send me some more blanks Yours truly,

Hillsboro, Wis. ELIAS FOX.

Send 10 cts. for three back numbers or 50 cts. for one year.

W. H. PUTNAM, River Falls, Wis.

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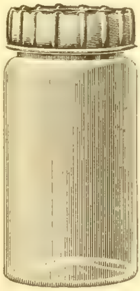
"Increase" is a little booklet by Swarthmore, tells how to make up winter losses with less labor, without breaking full stocks. Entirely new plan, 25c. Prospectus free. Address Free to purchasers of queens. **E. L. Pratt, SWARTHMORE, PA., U. S. A.**

SIMPLEX HONEY-JAR.



We have found a new glass jar for one pound of honey, which we think surpasses any other style we ever offered. It has a glass top which screws on to the glass jar with a rubber gasket between. The joint is on a taper so that, the further you screw the cover on, the tighter it makes the joint. It can be sealed absolutely air-tight; has no metal to rust or corrode. It is about ¾ inch higher than the No. 25, which improves its appearance. We sell them at the same price as the No. 25, and have a carload in stock ready to fill orders. We first learned of this jar nearly a year ago, but have said nothing about it until we had the stock in hand ready to supply. We still have some No. 25 in stock for those who may prefer to continue with it We believe, however, the Simplex jar will take the place of the No. 25.

THE A. I. ROOT Co., Medina, O.

"TIME" "TIDE" and "BEES"

"Wait for no man."

DON'T RUN THE RISK

Of having to wait now for Supplies.

SEND "LEWIS"
YOUR ORDERS
AND YOU WILL
GET THE BEST &
GET IT QUICK.

BEWARE
WHERE YOU BUY YOUR
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WATERTOWN, LEWIS U.S.A.
MAKES THE FINEST

Millions
Of Sections.

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Ready for Prompt Shipment.

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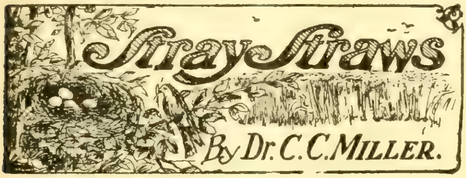
GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

Vol. XXXII. JULY 15, 1904. No. 14



Stray Straws

By Dr. C. C. Miller.

Editor York and wife have been helping us celebrate the glorious Fourth.

A lot of figures are given by G. M. Doolittle, page 638, that I counsel all beginners to become familiar with — they'll come handy, and he has given them in good shape.

If you want a bed of beautiful blue flowers resembling heliotrope, on which the bees shall tumble over each other, it is not yet too late to sow phacelia tanacetifolia. Otto Luhdorff, Visalia, Cal., advertised seeds in Gleanings.

Bees trying to supersede their queen are supposed to "supply the queen larvæ with with more royal honey," page 659. What's "royal honey"? [The phrase in question should have been "edited," before it went to the printers, so as to read "royal food." It was overlooked.—Ed.]

The list of fruits given by A. I. Root, p. 664, is enough to make one's mouth water; but one thing you omitted, friend Root, and I wish Mrs. Root and you were here to enjoy strawberry shortcake with us. The crop of that delightful culinary compound is fine this year.

In the discussion as to Hoffman frames, some talk as if it were a controversy between self-spacing and loose-hanging frames. By no means. I would not like to give up self-spacing frames, but it would be hard to induce me to use closed-end or partly closed-end frames. [But the Hoffman certainly comes in for a large share of attention, for it is the most generally used of all the self-spacing type of frames.—Ed.]

W. L. Coggshall, p. 662, has never seen frames without bottom end staples taken out without maiming bees, unless it took 5 or 6 minutes to a hive. All in locality, Bro. Coggshall; come out here and you'll see it in a fourth of that time, and without any jarring of the bees that the end staples cause, making them cross, and making queens hide. [Our experience is the same as the doctor's.—Ed.]

So glycerine is not a reliable preventive of candying, page 639. Glad of it; would rather be able to say that there's nothing in honey but honey. On page 660 the use of glycerine is advised. You have my gracious permission to retract, Mr. Editor. [All right, doctor, we stand corrected. We do not believe in the principle of putting any thing into honey, even though the thing put in may be much more expensive than honey. We are glad that the glycerine has failed, as it certainly has.—Ed.]

Outdoor feeding allows the stronger colonies to get the lion's share. "All right," says C. E. Woodward, p. 661, "all you have to do then is to draw combs of feed from the strong for the weak." But look here, friend W., I'm not away off by myself in Cuba, like you, and I'd get into trouble if I were to draw combs from the strong colonies in my neighbors' hives. [In other words, you mean that, if you used open-air feeders, you would feed your neighbors' bees as well as your own. Here again the question of locality plays a very important part in the matter; but I do believe that, where one owns all the bees within a mile and a half or two miles, he can, if he is an expert bee keeper, practice outdoor feeding with great economy of labor; and then if the strong get too much, he can even things up later on.—Ed.]

Mr. Editor, you want Mr. Aitkin to dispense with quilts and cloths so the bees will seal down the covers, p. 648. But don't those quilts and cloths help protect from the hot sun? A cover with a dead-air space would be the thing. [Instead of using quilts and cloths I would use what is far better—shade-boards, or, better still, double covers, then it would not be necessary to use a 20-lb. stone to hold either the shade-board or the cover in place. I see quilts and cloths used by bee-keepers many times, and often wonder why others will persist in their use, involving the necessity of handling heavy stones. If the climate is cool, why not have a double cover, or some sort of cover that is warmer than the ordinary single-board thickness? The former with air-space between the two thicknesses, the whole protected by Neponset roofing, makes a very warm cover. This will stay in place, without a stone — yes, indeed, it must be pried loose with a screwdriver or a hive-tool.—Ed.]

The editor, p. 635, seems a little worried at the continuance of cool weather. Don't worry; it's been a cool June, to be sure; but weather records at Chicago show that June, last year, was 3 degrees cooler, and last year was the best honey season I ever knew. [I hope you are right; but continued cool or cold weather, and continuous rains — almost continuously wet weather when it does warm up — is not very reassuring. It is not too late for us to get a fair honey crop in this locality, for basswood looks well, and is already beginning to yield; but the bees, poor things! can not work on the blossoms more than two hours at a time, when down comes a dashing rain —rain, rain, rain; dark skies, rumble and thunder, then more rain. We are hoping and hoping. Clover is already in bloom because of these same rains. When it does stop, we think we shall get both clover and basswood honey.—Ed.]

"No drones among the sections, and timely taking off, are the chief factors in securing whiteness of comb honey," says S. T. Pettit, p. 645. In this locality, friend Pettit, distance from black combs is a greater factor. Years ago I was in the habit of putting a brood-comb between wide frames of sections, to bait the bees into the sections, and I had to be prompt in removing the brood before sealing began, otherwise black cappings would be used on the sections when only a few cells were sealed. You see timely taking off wouldn't work there, and I don't think drones had any thing to do with it. Even if you had exceptional cases in which bees did not carry black wax to the sections, although the distance was short, that doesn't disprove the fact that they do it in other cases, and I don't feel safe without a considerable distance between old combs and sections. As the case you cite was your first effort at comb honey, I'm wondering whether your combs at that time may not have been too new to be very black.

A kink that I don't remember to have seen in print may be worth mentioning: When a queen is a week or so old, it is often impossible to find her. But a pretty safe guess as to her presence or absence may be made from the appearance of the combs. If there is a central spot with the cells all cleaned out and polished, ready for a queen to lay in, you may be pretty sure a queen is present. If no queen is in the hive, honey will be scattered in the cells here and there in this central spot. [This is a good point. I am in the habit of diagnosing our colonies to determine queenlessness largely by the behavior of the bees on opening a hive. If there is a loud roar as of distress I surmise the colony may be queenless, but am not sure of it. The absence of eggs and young larvæ confirms my suspicions. If I find a queen-cell, then I am sure that the colony is queenless. But here is a colony that has a virgin, or possibly has one. There is no loud roar, and she may be out on her flight. Right here your kink will come in good play. I shall ask our boys to test it and report. By the way, I should like to get suggestions from our readers on surface indications as to the queenlessness of colonies beyond those already indicated. Any thing that will save some of the back-breaking labor of looking over the hives should be welcomed.—Ed.]

Consumption of honey in a year by a colony of bees has scarcely been thought of till lately, and it is to be hoped that some of these days we may know more about it. Conditions have much to do with it, as I learn from a letter from Adrian Getaz. As he says, in Europe, mobilists (users of movable frames) work for extracted honey exclusively, and in Herr Kramer's figures no honey was necessarily used for the building of comb; and when Mr. Getaz estimated 200 pounds, he counted on bees building comb for sections. Again, G. M. Doolittle, page 651, counts 30 pounds sufficient for the 9 months from August to April inclusive, while Mr. Getaz counts 40 pounds for winter alone, as he says it takes that much in the open and varying winter of Tennessee, outdoors.

I've just been weighing the wax in 8 sections, and find it 4 ounces — this with no cappings, which would materially increase the weight. But if we just take it without the cappings, it would make 1½ pounds of wax for the comb in two 24 pound supers. At 10 pounds of honey for each pound of wax, that would require 15 pounds of honey consumed for the comb. But should there not be a still greater difference? If 50 per cent more extracted than comb can be secured, then while the bees are storing that 48 pounds of comb honey they would store 24 more of extracted. If the same amount is *gathered* in each case, do not the bees *consume* that extra 24 pounds? If I am not mistaken, the first estimate I ever saw was that of G. M. Doolittle, 60 pounds, and that stood for a long time. Now we have our choice of 70, 100, and 200, and it would be well if we could have some very reliable data. I venture to say it would not be at the lowest figure. [The actual annual consumption of stores, if it could be accurately measured, which I think it can not be, would vary, I think, as much as the estimates given by our correspondents. So much depends on the locality, size and kind of hive, the strain of bees, the queen, and the man, one could hardly put down a set of figures as being the right ones for all parties concerned. In the South, as suggested, the winter's consumption would be much larger than in the North; and even in the North the outdoor consumption would be considerably more than the indoor for winter. Then, again, some bees run more to brood-rearing than others, resulting in a large use of stores. In the first place, we do not know how many pounds of honey it takes to make a pound of wax. The experiments already conducted are so much affected by locality and other conditions that the figures run all the way from 3 to 20 lbs. I do not see how we can do much better than to guess at the amount of stores consumed by a colony in a year. For Doolittle's locality I should suppose his figures were reasonably correct. Those given by Adrian Getaz are probably not far wrong; but if any thing they are high rather than low.—Ed.]

Pickings from Our Neighbors' Fields
By
"Stenog."

De Jonbry, a French *savant*, maintains that the chief design in the creation of bees was the fertilization of plants, and that the gathering of honey is merely incidental. Not knowing when to stop storing, their instinct impels them to get all they can, which is usually more than they want, and that surplus is what man takes as his share. That writer claims that the amount of food given to man by bees in the way of honey is insignificant when compared with the amount he gets by better fertilization of the blossoms. The bee seems to be a sort of double-edged benefit to man.

* * *

I believe it was some Cleveland journal that said the germs of disease in water can be killed by subjecting the water to great pressure, such as is used in squeezing pomace when making cider. If that is true, perhaps the germs of foul brood in honey can be killed in the same way, without subjecting the honey to the effects of heat. Reports are called for. The principle is this: If a corked empty bottle be put in water, and the latter so confined that great pressure may be applied to it, the cork will be driven into the bottle, or the bottle may be broken into fragments. In a like manner, if much pressure is applied to a spore it is as certainly killed as an apple seed would be by crushing it.

* * *

The Third Annual Report of the Illinois State Bee-keepers' Association is now ready for delivery, and every bee-keeper ought to have a copy. It consists of 160 pages, 130 of which are taken up with a verbatim report of the proceedings of the Chicago-Northwestern Bee-keepers' Association, which took place last December. The remainder of the book is a report of the Illinois State Association proper. The book is well illustrated with views of displays of honey, and pictures of the prominent bee-men of Illinois. I believe Mr. G. W. York has done more than any other bee-keeper in the United States to give to all other bee-keepers full reports of all that is said at the big conventions—that is, all bearing on the subject. He has become responsible for the stenographic work, itself involving great expense. To enable him to do so the better, it has always been the policy of Gleanings to give him an undisputed field, feeling that, if others desired a complete report of conventions, a dime or so would bring it, without crowding columns that are already full. I hope Mr. York's work in this line will be remembered by all bee-keepers.

AMERICAN BEE JOURNAL.

Mrs. Lucinda Harrison, probably the best-known woman bee-keeper in the world, died at St. Andrew, Fla., May 26, at the age of 73, or she would have been that old next November. Her death is not so much a matter of surprise as the fact that it escaped my notice till now. She has been a frequent contributor to Gleanings for 25 years. Her life has been such as to bless the world, and she will be missed much, not only by her immediate friends but by bee-keepers at large. Of late years her writings have not borne so much on bee-keeping as on subjects of a general nature. Her home was in Peoria, Ill.

* * *

Just four days after the death of Mrs. Harrison she was followed by Mr. C. Theilman, of Theilmanton, Minnesota. Mr. T. was in times past one of the most valued contributors to Gleanings. I learn of his death in the *American Bee-keeper*. The old familiar names are becoming scarcer.

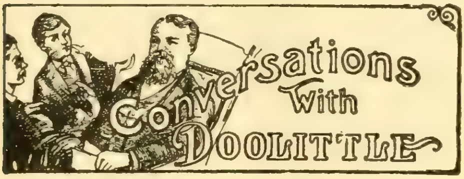
IRISH BEE JOURNAL.

In speaking of insurance the editor says, "Up to June 20, 52 subscribers had insured 596 stocks under our scheme—an increase of 171 stocks upon the corresponding period of 1903. Cost, one penny per stock per annum.

* * *

A certain bee-keeper in Australia says he does not paint his hives, for he is liable to be compelled to burn them at any time on account of foul brood. Mr. Digges says, "That is what we are coming to in Ireland." That seems like a strange confession. Mr. McEvoy would clean it out in less than a year, as effectually as St. Patrick did the snakes in that same island.

Under the head of "American Courtesy" the editor of the *I. B. J.* says, "C. P. Dadant has issued an invitation for a delegation of British bee-keepers to a convention at St. Louis. He has not thought it necessary to invite Irish bee-keepers. Mr. Dadant is vice-president of the National Bee-keepers' Association of the United States. He ought to know better." Of course, the editor must not be taken too seriously in the above. I am sure Mr. Dadant meant to include in the word "British" all who live under the British flag, whether in Ireland, New Zealand, or Nova Scotia. Whatever happens, it is certain that Mr. Dadant never slights any one. He doubtless meant to invite the Britirish bee men, so to speak.



TOO MUCH POLLEN.

"Great year for pollen, this."

"Well, Brown, I have known years when bees stored fully as much as this year. Does this storing of pollen bother you?"

"Yes; or I think that what they have in the combs will be a damage to me."

"Possibly. But let us talk the matter over a little and see about it. What did the bees store it from?"

"First, they stored from the hard maple till I thought the combs would hold no more. But we had a week of stormy weather soon after, and they used the most of this for brood rearing, so I got rid of that. Then came sorrel, of which we have acres; then the wild grape, together with that from clover, till the combs are so full that there is little room for brood or honey. Is not such a state detrimental to the welfare of the colony? and should it not be removed?

"In some localities bees store so much pollen that it seems to those not so thoroughly familiar with the inside workings of the hive as they ought to be that some device for removing this pollen would be of great benefit to them; in fact, I heard a man once offer as high as $25 for some plan to remove pollen effectually from the combs without materially injuring the same. This was at a bee convention. Then I have also heard it advised to melt up the combs which had so much pollen in them so as to get the wax, which wax was to be worked over into comb foundation to put into the hive for the bees to draw out into comb again."

"Did you not think that good advice?"

"Well, hardly; for with me this pollen will take up all the wax there is in a comb when put into the solar wax-extractor, while with steam it is nearly as bad. The only way any wax to any amount can be gotten from combs containing much pollen is to boil these combs in water. This will wet up the pollen with the water, and allow the wax to escape without the pollen absorbing it, as it otherwise would, on the same principle that a sponge takes up water."

"That is something I had not thought of when considering melting up combs containing pollen. The hot water process is too long and tedious for me to undertake. What did you think about the machine remedy?"

"About the same as the melting plan. All such advice seems to me to be a damage rather than a help."

"You surprise me. What makes you think that way?"

"In this locality we get large quantities of pollen, probably as much as is gathered in any portion of the United States, yet I have never melted up a comb on this account, nor would I give a cent for the best machine that could be invented for its removal."

"But did you never see where the bees remove it and push it out at the entrance? And does not this show that they had too much of it?"

"Some claim that, where too much pollen is stored in combs, the bees remove it and tumble it out at the entrance, as you speak of; but I am inclined to think that they and you mistake that which is sometimes dislodged from the pollen-baskets of the bees at certain hives having too small an entrance from some reason, or an entrance-guard on, for that which is removed from the combs, as in all of my experience and careful observation I have never seen any to be thrown out in this way unless said pollen had become moldy."

"I guess you do not have as much pollen as you think you do."

"We have two different periods when the bees store very much more pollen than is worked by the nurse bees into chyme for the young brood. One is during the bloom from hard maple, and the other during white-clover bloom, so you see our surplus of pollen is similar to yours."

"Yes, I see. But how full do the bees fill the combs?"

"I have had many combs of pollen that weighed from 4 to 4½ pounds."

"That beats me. I had one comb that weighed 3¾ lbs., and I said, 'If it could only have been honey!' What do you do when you find combs so heavy with pollen as 4½ pounds?"

With such combs and times as these I often work as follows: Whenever the bees gather so much as to crowd the queen I next to the brood, and find that this answers a better purpose, at less expense and work, to stimulate brood-rearing early in the spring than the feeding of rye, oat, or any meal, as is so often recommended by draw the frames filled with pollen back away from the brood, and place such frames as may contain honey which are in the hive between these frames and the brood, thus causing great activity with the bees in changing things back as they wish them again. The result of this is the converting of both pollen and honey into brood much faster than would have resulted had things been left as they were."

"I see how that would work in the maple bloom, and where colonies did not have much brood in the hive; but how about the matter when the hives are more nearly filled?"

"If the brood has increased enough so that this and the combs of pollen fill the hives, then the combs of pollen are taken away for the time being, and combs of honey (if I have them) put in their stead. If I do not have combs of honey, then empty combs are used. If there come a few rainy or windy days at this time I find that what seemed to be a damaging amount of pollen is all exhausted, so that the cells are once more empty or filled with eggs, as you spoke of finding once in your colonies, as it takes large quantities of food for the brood at this season of the year."

"What do you do with the combs of pollen you took out when the bees had so much?"

"After apple-bloom there is little for the bees to work on, and the surplus pollen is soon worked up into brood, and more needed, when I set back that which I removed, and thus brood-rearing is kept up more effectually than by feeding syrup or honey, as is advised by many. I always consider plenty of pollen in the combs during the period of scarcity before clover as a great advantage."

"But what about the later pollen, in time of clover-bloom?"

"The pollen gathered during the time of the clover-bloom is treated differently by the bees from that gathered earlier. The latter rarely has honey placed on top of it, while that from clover is placed in the cells till they are from half to three-fourths full, when the cell is filled with honey, and sealed over so as to preserve it against a time of need during the latter part of winter and early spring. Whenever I find colonies suffering from too much clover pollen I take away two or three of these combs and place them over weak colonies to care for till all danger from moths is past, when they are stored away for winter."

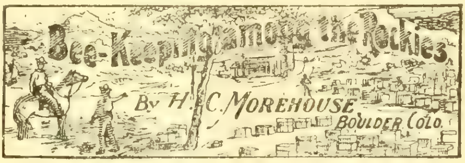
"How can you tell these combs of pollen from those not having any, after the pollen is covered with honey and the cells sealed over?"

"Combs containing pollen under honey are readily distinguished from those without by holding them up before a strong light and looking through them."

"What do you finally do with these combs?"

"When spring opens I place one of these combs in each hive (if I have that many), many bee keepers. In this way all pollen is used up to a far better advantage than the inventing of machines for its removal from the combs."

"Well, I do not know but you are right."



As a general rule, western comb honey should all be marketed by the first of October.

◆

E. J. Atchley, the editor of the *Southland Queen*, is spending the summer at Littleton, Colo., where he recently arrived with a full carload of Texas bees.

◆

Don't hold back the facts in regard to production. Not only is there no gain in such a policy, but positive harm is usually the result. Prices inevitably reach the natural level of supply and demand.

◆

One of the severest trials of the honey-buyer is careless and incompetent grading. Every bee-keeper should seek to grade according to the established rules that govern the market where he desires to dispose of his product, do his work carefully and conscientiously, and study it as a fine art.

◆

I wish to register most emphatically my approval of the editorial on page 537, June 1, relative to the early marketing of comb honey. The facts therein stated tally with our experience in Colorado last year, and in former years, and the advice given is sound as "old wheat." Read it again, Mr. Bee-keeper, and then paste it in your hat and *read it daily until your crop is sold.*

◆

If I succeed in collecting sufficient reliable data, I shall be able to give a fairly accurate summing-up of the western crop situation in this department for August 15. I hope that every western bee-keeper who scans these lines will sit right down and write me a postal-card report for his locality. If the size of the crop can be known with approximate correctness, and that information generally diffused, no bee-keeper need sacrifice on his crop by holding the price either too high or too low.

◆

The United States government has at last decided to construct the Gunnison tunnel, which will provide water to irrigate about 90,000 acres of now desert land in the vicinity of Montrose, Colo. Two years will elapse before tunnel and canals will be completed and the land reclaimed. This is especially interesting to bee-keepers, as it means pasturage for thousands of colonies of bees. Other irrigation projects of vast proportions are under way in various parts of the West, which I will bring before the readers of this department from time to time.

* * *

Fastening foundation in brood-frames with melted wax is so far superior to the wedge-and-groove method now in vogue that I am surprised to see it no more generally recommended. In Colorado the wedges shrink to such an extent, even when nailed in, that the weight of a swarm will invariably pull down some of the starters. When they are cemented to the frame with melted wax they stay, and the operation is performed much faster than by putting in the wedges. A little tool, the Van Deusen wax-tube fastener, was constructed for this purpose, and works perfectly.

* * *

Shallow divisible brood-chamber hives are gradually winning their way into popular favor. I formerly entertained a strong prejudice against them; but a trial has convinced me of their great merit; and if the system of management I am using in connection with them proves a success this season, I shall be ready to shout "Eureka!" Last year I hived about 25 swarms in such hives. They gave a fine crop of section honey, wintered well, and have built up nicely for this season's flow. At present writing they are storing in the supers, and have shown no inclination to swarm. I have not yet realized my friend Gill's objections to "so many sticks and spaces." The hive I am using is two ideal supers holding ten hanging frames each.

COLORADO CROP PROSPECTS NOT FLATTERING.

At this date, July 5, I am sorry to have to write a report under the above caption; but in justice to the bee-keeping public at large, the truth must be told. The cold wet weather of early June not only delayed the blossoms but gave brood-rearing a serious setback. As a consequence, many colonies are not in condition to store in the supers. With the exception of four or five days during the week of June 26, the weather has continued cold, cloudy, and highly unfavorable to nectar secretion, giving a light slow flow. The first crop of alfalfa is now all cut. Sweet clover is abundant, is blooming freely, and would yield satisfactorily if weather conditions were only right. With our long season of honey-flow, there is still a chance for a pretty fair crop; so we are hoping that every day will bring the hot sunshine, so necessary to a good honey-flow.

I have received a few reports from various parts of the State, and, without exception, all complain of bad weather and no nectar in the flowers. Fears are freely expressed that the crop will be a total failure.

SERIOUS LOSSES OF BEES IN UTAH — WHO CAN SUGGEST A REMEDY?

I have received the following communication from a friend in Utah, which speaks for itself. Is this a new and strange bee-disease, or is it a very malignant type of paralysis? Possibly some purely local cause is responsible for the great mortality among the bees of that locality. Who can give us some light?

There seems to be great danger in Utah of a total loss of the entire bee industry. I shall give you, as nearly as I can, the conditions, both in the past and at the present time.

In this valley and in the one 50 miles north of here, called Cache Valley, there have been for many years a great many bees, both in the hands of skilled operators and in the hands of many farmers and small owners. A year ago this spring there were upward of 2000 colonies of bees lost. It was thought a year ago it was owing to the very cold winter weather and changeable weather in the spring; but the strange part of it is that, in some localities not any warmer, but, if any thing, colder, the bees survived all right with scarcely any loss at all.

I lost last year 300 colonies of bees, and in some localities in Cache Valley there were upward of 500 colonies that went under; and in this valley (Salt Lake) last year there were fully 800 colonies that perished. It was thought by all those who were interested that it was due to the hard winter and cold spring, and was let go at that; but in Cache Valley a gentleman by the name of Bullock, who has been in the business at least 15 years, and had 500 colonies of bees, came through with his last year with not more than 10 per cent loss. He took excellent care of them last winter earlier than usual; but he now has but 10 per cent of his bees alive. Since I heard this I made a visit to where I had my bee-grounds, and will say in explanation, after loss of my entire number last year, that I went into Melal Valley, where there had been no loss at any time, and is none at the present time. and purchased 225 colonies of very strong bees, and had them moved into Cache Valley, where I had the loss last year. and expected that I would accomplish a great deal with them; but when I heard of Mr. Bullock's loss in that locality I at once made an investigation. I was there yesterday, and a large part of the entire 225 colonies are affected with what appears to be paralysis. While there is no trembling, they drop down in the grass in front of the hives, and are unable to fly; and they seem to mount the grass and twigs with great difficulty, and in taking them up in my hands they were unable to fly away, and, if thrown into the air, would drop to the ground. They seemed to have no desire even to sting. It appears to be contagious, for it seems to affect a certain part of a row, while another section of the row seems to be strong and swarming. A number of hives have all gone under. The entire yard, of course, is exposed, for the reason that a few, perhaps 20 colonies from what were left of the lot last year, were put with them without any thought of any thing being wrong, except that they were weak.

I am fully satisfied now the loss last year, which would number at least 2000 colonies in Cache Valley, was due entirely to this condition. I am now anxious for some remedy to overcome this difficulty, and shall appreciate very much instructions and information which will enable me to overcome it.

I have advised my partner in the business to sprinkle powdered suphur in the hives at night. He has been using salt and water, but that does not seem to have very much effect. **B. P. Critchlow.**

Ogden, Utah, June 24.

REPLACING SUPERANNUATED QUEENS.

The foundation for a crop of honey in 1905 may be laid now by providing each colony with a young queen, or at least weeding out all queens more than one year old. Many writers have asserted that this function may be safely entrusted to the bees; that they will invariably supersede queens when they begin to fail from old age. I have not found it to be true in actual practice—at least it is not in Colorado. A safe rule to follow, and one that makes for improvement of stock, is to requeen every season; and the ideal time to attend to it is in August, during the flow from the second crop of alfalfa.

The majority of our losses of bees in this country occur from queenlessness—from the failure of superannuated queen to rear a sufficient force of young bees to carry the colony through the winter. Many colonies that winter fairly well fail to build up for the flow, simply because their queens are old and worn out. In my own apiaries these losses constituted my entire winter loss, which amounted to fully ten per cent. I feel sure that I can practically obviate such losses in the future by a general requeening during the August flow.

This is a matter of most vital importance, but one that bee-keepers usually neglect—to their loss. M. A. Gill enunciated an aphorism when he said, "Good queens put money in the bank." Certain it is, they are the foundation of all our success in apiculture.

The method of requeening that I prefer, and the one that is probably best for the average bee-keeper, because of its simplicity, is to remove the old queen, and at the same time insert a ripe cell inclosed in a West cell-protector. It is necessary to rear at least two batches of cells, as a certain percentage of the young queens will get lost when they fly forth to mate, and cells will need to be inserted in these colonies a second time.

The young queens thus secured, if care is taken in rearing the cells, will be of the very best, and will be right at their egg-laying zenith next May and June, when prolificness is a very desirable quality. Another important consideration: Old queens will cease laying at the cessation of the honey-flow, while queens reared late in the summer will keep brood-rearing going until cold weather, putting the colony in the best possible wintering condition.

Editorial
By E.R. Root.

DRONE-LAYERS WANTED.

E. F. Phillips, Ph. D., of the University of Pennsylvania, who, a year ago, conducted a series of experiments on Parthenogenesis, and who is with us again this summer, desires to secure at once some drone-laying queens.

The researches of Dr. Phillips thus far are of great value, I think, to bee-keepers. He has already made some important discoveries; and in order to complete his investigations he will need some drone-laying queens. Send to us, marked "drone-layers," and we will send in their place a choice laying queen.

THE HONEY CROP FOR 1904.

In response to our request, we have received, up to July 15, hundreds of letters from our subscribers in the central States. In a word, present indications go to show that the crop will be fair; light from clover, but abundant from basswood where that grows. For all localities in the region of the central States there has been too much rain, weather too cool, with the exception of Michigan, especially the northern part of it, where it has been very dry. A large part of the bees died last winter, and it has been so dry in the State that the rest of the bees will not be able to do very much.

The reports are somewhat meager from Illinois, and vary all the way from fair to good.

Many reports have been received from Iowa showing a fair season for most localities, but poor in some.

Pennsylvania, from present indications, will take the lead for a good honey crop this year.

Reports are very meager from New England, but those received indicate a light yield.

Ohio will show up fairly well.

New York will probably, where there are any bees left, give a fair yield from clover, basswood, and buckwheat.

Wisconsin and Minnesota will probably have a light crop.

Reports from the region just south of the Ohio River are unfavorable; for during the *very* time when the honey-flow should have been in progress it was too cool and rainy.

Most of the reports received up to July 5 and 6 were unfavorable; but the great majority of them that have come in *since* are very much more encouraging, the weather having turned warmer, and the rains having ceased.

There is a universal agreement that there is an immense amount of white clover this season; but in many localities the yield from that source is light, which is probably due to too much cool weather. But the plant has received a wonderful impetus owing to the rains, and it will probably be in bloom in many localities for a week or ten days yet. I think I never saw so much clover in our vicinity as now.

The few reports we have had from Colorado are not very encouraging; but Mr. H. C. Morehouse is gathering data. See his report elsewhere.

Taking it all in all, it is hard to say whether the crop in the basswood and clover belt will be lighter than last year or not. In some localities it will be very much worse, and in some very much better.

We would request our readers to send in postal-card reports of one or two sentences, and *keep sending them in*, because this report will have to be revised for our next issue, and we wish to portray the conditions as accurately as possible.

A FEARFUL MORTALITY OF BEES IN UTAH.

IN the department of "Bee-keeping among the Rockies" a letter is published from Mr. B. P. Critchlow, describing a very serious malady that is destroying hundreds and perhaps thousands of colonies in Utah. We have had reports of like trouble in other localities. From the symptoms given I should hardly say it was bee-paralysis. Still, it may be a peculiar form of it.

Some eight or ten years ago, after a heavy honey-flow I saw that there were hundreds and perhaps thousands of bees crawling around in the grass, unable to fly. They seemed to be in a hurry, and somewhat distressed; they would crawl up spears of grass, and drop down and repeat the operation until exhausted. At the time, I thought it was the superannuated or worn-out bees that had borne the brunt of the toil of the season just then closing, and that they were the six-weeks fellows that had run out the term of their allotted days. But the fact that there were so many of them, and especially so at that particular season, and the further fact that we have never seen any thing like it since, would go to show it was something else.

If any of our correspondents or friends are able to offer any solution that will help our western friends we shall be glad to have them communicate with us at once or with the parties direct.

THE WIDE-SPREAD BELIEF IN MANUFACTURED COMB HONEY.

THE average bee-keeper, perhaps, does not realize that the great majority of people outside of beedom believe that comb honey is actually manufactured, filled with glucose, and capped over with machinery. Modern civilization has developed so many wonderful things that the public is ready to believe any thing. So persistently have the stories about manufactured comb honey been circulated, even in journals of good reputation, that the average man or woman who does not know any thing about the business thoroughly believes them. He eats comb honey, but is pretty well satisfied that it is manufactured. Traveling men who have come to our place of business can scarcely believe us when we tell them that comb honey is not manufactured, and that we will pay $1000 for a single sample of it. These same men (and they know pretty well what is the common impression) tell us that everybody believes that the beautiful combs they see in section boxes are entirely the work of man. I fear that the bee-keeping world does not realize the fearful and awful damage that this heresy is doing to their business.

I wonder if the National Bee-keepers' Association could not take up this matier, and discuss the best way to overcome the effect of these canards. If the matter comes up for discussion, the newspapers of St. Louis, I am sure, will be glad to give the gist of that discussion, which will show, of course, that there is no such thing as manufactured comb honey. It is hard to get the general press to publish items refuting these lies; but they are always glad to get the work of conventions, and in connection with the report of our convention they would certainly publish the truth about comb honey.

AN EXPERT YOUNG BEE-KEEPER; HOFFMAN FRAMES IN THE HANDS OF EXTENSIVE USERS.

WE are having with us here Mr. F. B. Hooper, son of F. A. Hooper, of Hooper Brothers, of Kingston, Jamaica. He is a young man (only twenty years of age), but was anxious to see something of the great wide world besides the island on which he was born and reared; and this wish has now been gratified by a tour through the United States and Canada. He has been sojourning here at Medina for a few weeks, helping our men in our bee-yards. I took him out to one of our outyards to "diagnose the bees" as I call it. It is my habit, early in the season, to take a hasty glance through some of the colonies for the purpose of getting a birdseye view, as it were, of the condition of the bees. After I had opened a few hives I had him help me close them up, and I could not help noting that before me was an expert bee-keeper. There was a certain something in the way in which he picked up the frames, handled the smoker, and opened and closed the hives, that showed unmistakably he had been born and reared among the bees, and knew just how to handle them. I dare say that, for a man of his age, he has extracted and helped to extract more honey than most young men in this or any country, in fact. He has been familiar with averages of over 200 lbs. per colony. He knows what it is to handle immense crops of honey; and I fancy that, if he were to be here long enough, he would be able to show us some new tricks of the trade.

By the way, Hooper Bros. use nothing but Hoffman frames for extracting. Indeed, they consider them far superior to any other style. It is a mistaken notion that such frames are not adapted for hot countries, or wide spacing to get fat combs for extracting. The fact that some of the largest producers in the world use them shows that they are not so difficult to handle as those who have not used them extensively suppose.

Mr. Hooper remarked, after he had been here a few days, that he was suffering the awful pangs of homesickness He asked me, in a plaintive sort of way, if I knew what that was. I said I had never had that awful feeling, but I had seen those who had. Well, Mr. Hooper has seen enough of the world, and, I should judge, feels that there is no place like home; and, indeed, his home or his country is something to be proud of — a climate that is ideally perfect — one that is, perhaps, the greatest paradise for bees, unless it is some portions of Cuba, in the whole world.

GENERAL
CORRESPONDENCE.

OVERSTOCKING A LOCALITY WITH BEES.

Personal Rights of Bee-keepers; a Very Fair and Candid Statement.

BY W. M. WHITNEY.

Such are questions that come up occasionally for the consideration of bee-keepers. In fact, in some localities the matter seems to assume a somewhat serious phase. A person keeping bees in a given locality, by virtue of the fact of being the pioneer in the business, and, perchance, in an ordinary season, has the region sufficiently stocked, it is contended, has the moral right, and should have the legal right, to warn off all persons attempting to carry on the same business as trespassers from such territory.

Passing over the question of the legal rights of such a person, there can be no two opinions as to what they are. Let us consider the ethical side of the question. As the ultimate result (the money value) is the gist of this whole matter, it does not materially differ, so far as the rights between man and man are concerned, from any other rural pursuit, nor, in fact, from any other line of business.

Suppose that some farmer starts out on some special line of agriculture, as, for instance, raising potatoes I have in mind such a venture in New York, years ago. The first crop brought in the neighborhood of $1.00 per bushel, and several times over paid for the land. Farmers all through that region caught the craze for raising potatoes. Those who lacked seed, the next spring bought at high prices. Potatoes sold in the fall at 18 to 20 cents per bushel. What right had these farmers to interfere with this man's special industry by glutting the market with potatoes? But who gave him a monopoly of this special food production to the exclusion of every other farmer? This monopoly business is just what we are all complaining about in almost every line of business. Overproduction is within the recollection of many, of every commodity raised on the farm—grain, fruits, horses, cattle, sheep, hogs, wool, etc.

Farms have been mortgaged to extend the business in hand, and lost by overstocking—by overproduction and competition. Turn on the search-light for the turpitude in any of these cases, and find the guilty person if you can. So it has been the world over in every line of business. Successful ventures in any branch of manufacture tend to stimulate and extend the business until overproduction follows, and, in many cases, bankruptcy is the logical sequence. Shall we run down and punish all except the pioneer in the various ventures which resulted in general disaster? Any rule of ethics that gives to an individual bee-keeper the exclusive right to a given territory, because he happens to be first on the ground, should give the same right to a person engaged in any other line of business for the same reason. Nothing would suit the monopolist better. The pioneer bee-keeper wants a monopoly of the territory, or, in other words, the business. What's the difference?

To illustrate the fallacy of the position taken by those who claim a prior right, let us take a case in point as an object-lesson. Two years ago Mr. M. Ethics started bee-keeping in a fine farming region having an abundance of white clover, considerable alfalfa, and many other honey-producing plants, and no bees within several miles of him. I know of just such a location now. He secured a little patch of ground for his home, on which he located 100 colonies of bees; he also secured an outyard which he stocked with another 100 colonies. Being the only person in the business, the outlook seemed all that one could desire. A large crop of fine clover and alfalfa honey was secured, and marketed at satisfactory prices as the result of the venture; also, the colonies had increased 50 per cent; hence another outyard was established the following year. The farmers began to open their eyes, and look about themselves, and to inquire one of another whether they had not been stupid to let so much material wealth of the farm go to waste all these years. They began to read papers that told how to keep bees. Mr. Ethics noticed that they were stocking up all through his locality. The following is substantially Mr. Ethics' story as I get it from him through an interview, *a la* Doolittle.

He said that, being the pioneer in the business, and as he had the locality fully stocked, it was ethically wrong for them to come into his territory and ruin his industry. He said that was the way he looked at the situation at that time. But they said to him that they were there first — in fact, were raised on their respective farms. Still, he argued that he was there first in the bee business; that the locality was fully stocked, and that any increase of bees meant absolute ruin to the entire business. He said, "You ought to have seen how those farmers went for me. I didn't know but they'd have my hide nailed up on the barn to dry, the way they came at me." They insisted that they owned the land on which the blossoms grew; that they paid taxes on their property to maintain the government; to support schools; to construct roads, etc., and could not understand why they had not the same right to furnish pasturage for their bees as for their cattle. One man said he had just rented a farm of 200 acres about a mile and a half from Mr. Ethics' home yard, on which there was about 80 acres of very fine clover pasture; that he was moving his stock and other effects, among which were 50 or more colonies of bees. Of course, he admitted that he was not first on the ground, but could not understand by what law of ethics he had not as good a right to pasture his bees on land he paid rent for as another had who paid nothing.

Mr. Ethics told me this and much more. You knew he's a glib and smooth talker. He said it was night when he got home; that he went to his room and shut himself in, and sat down to think, with nothing but the stillness of the night and his inward self to commune with; and, by the way, that's a pretty good practice when one wishes to do any hard thinking, and more especially when self is interested in the outcome. He said, "After thinking the matter over I came to the conclusion that, as compared with these men, my claim vanished into thin air; and if any one moved it was my business to do it; yet none of them objected to my remaining and making the most of my enterprise. I said to myself, 'Every time you opened your mouth you put your foot in it; in fact, you've made a fool of yourself, and you'd better go way back and sit down. These men have the same moral right to keep bees for the production of honey that they have to keep cows for the production of butter and cheese.'"

Then I said to him, "That's the right kind of talk; that's the kind of ethics I like. The bee-papers all tell the farmers to keep bees, and I think every one of them should do so — not in a slipshod ay as many do, but in an up-to-date manner as every thing else should be done on the farm. Fruit-growing is a part of farm industry, and bees are inseparably connected with fruit-raising. I think every farmer's family in the land should have lying on their center-table some good bee-journal, as well as one on fruit-growing and on general agriculture."

Every farm with five to ten colonies of bees properly kept, with a good bee paper as a guide, would introduce one of the most interesting pursuits of rural life, and furnish the family one of nature's most delicious delicacies. Ethical rights of an individual to territory, he does not own.

PEDDLING HONEY.

Refuting the Lies about Manufactured Comb Honey; An Interesting Experience.

BY FRANK M'GLADE.

I was especially interested in the two articles which recently appeared in GLEANINGS on the subject of selling honey — the one a failure, the other a success. I know something of the feelings of each, and desire to write my experience for the benefit of others.

When I was a young man I went to Cincinnati to learn how to sell books for the "Furgerson Brothers." When I reported for duty he said to me, "I'm busy now; go and sell a book to that typewriter there," pointing to a machine on a stand in a corner of the office. I stood there in silent amazement, as the real meaning of his words came to me, that I was to go up to that inanimate thing and talk to it just as though it were capable of comprehending what I said. If I could and would do that it would indicate that I had the material in me to make a successful book agent Well, I didn't even try it; but I received more real instruction in the few minutes I stood there than in all the rest of the two weeks I was there. I never forgot it.

Last year I got a crop of honey — not a large amount for some, but large enough to make it interesting for me. When I got ready to sell it I went to see the commission men, but they did not seem to be interested. Then I tried the grocers; but they wanted it for almost nothing, so I said, "Mc, if you know any thing about any thing, it's honey. Go out and sell it." And so with the vision of that old typewriter before me I pulled off my coat and went to work, and made it go nicely. I began with the comb honey, and sold direct to the consumer, in the drygoods stores and offices, to whoever would buy. I was regarded with suspicion everywhere, and found an almost universal notion that honey was adulterated, or "fixed up." Some expressed themselves in words, others by looks. This prejudice I saw I must remove, and so (remembering that typewriter) I set my tongue "agoin'" at such a rate and in such a way that I was soon sold out. I offered it to them at a price cheaper than they could get it for at the stores, which fact I never failed to call their attention to, yet I was getting more for it than I could get from the commission men. I would hold up a section, and say, "Gentlemen, the first day of May that section was in the factory at Medina. The first day of June there wasn't a thing in it. There isn't a thing in it to-day but what my bees put there; and every thing in it is just as it was gathered by the bees from the flowers. I guarantee it to be genuine white-clover honey, free from any adulteration whatever, gathered by my own bees. You can do as you please about taking it, as I would just as lief have the honey as the money, for I can get the money for the honey."

Whenever I saw it was prudent, I would talk "bees" — their habits; the queen, drones, workers; their age, how fed, length of time to hatch, construction of comb, etc. They would listen interestedly, and seemed to have confidence in what I said. When they would mention "manufactured honey," that would give me a new line that I would run along like this:

"No, gentlemen; I know of no such factory — do you? If it is manufactured, it is not honey. If it is honey, it is not manufactured. Honey is the pure nectar from the flowers, which can be gathered only by the bees. There is an offer of one thousand dollars at Medina, Ohio, to any man who will produce one pound of artificial comb honey. The offer has been open for years, and never taken, because *it can not be done.*"

When I started in on the extracted honey, that was almost another thing. They were sure *that* was adulterated.

I had some trouble to find a jar to suit me all right. I first tried Mason quarts, but they were too heavy. Then I tried the pints; but they did not suit. I finally found a clear-glass jar, made by the Federal Glass Co., with a screw cap, costing 30 cts. per dozen, which I could sell for 25 cts., which seems to suit all around. This company sells only in carload lots; but they let me have what I wanted, and I have come to the conclusion that the best way to get what you want is never to want what you can't get.

The first thing I did was to give a jar to the *State Chemist*, which he analysed and made a record of.

For a label I had the words "Honey, Frank McGlade, Pataskala, O.," printed on white paper. It looks nice and clean. Then I went at it again. They would ask why I had it in that shape. Then I would explain the cost of comb, that certain conditions prevailed in an apiary during a honey-flow that made it profitable to extract it. One asked, "How did you get the comb out of this honey?" I replied, "We don't take the comb out of the honey, but take the honey out of the comb by centrifugal force, and return the combs to the hives to be refilled by the bees."

I worked at it all winter in the stores and offices. It was too cold to make a house-to-house canvass, but I could go into one of those large buildings and work for hours, and be comfortable. I met the smartest men in the city, and was always treated courteously. I wrapped each jar in clean paper, and folded the ends neatly, as I had seen druggists do. The average business man dislikes to be seen carrying a package; but most of them will do it if it is in a neat shape. I dressed neatly, which attracted attention, and gave me audience many times. Sometimes I would enter an office, and, softly approaching the nearest man, would say, "Did you say you wanted some pure white-clover honey?"

He would look around, and I would watch his face to *see* him; thinking if he *had* told any one he did he would finally get together with "No, I didn't." Then I would go to work.

Another time I would enter an office in which a dozen or more would be working, and begin talking in a low voice, until finally some one would look around and say, "What have you got?" Then I would say out loud, "Honey! the sweetest thing in the world — except my wife." That would cause the girls to smile, and take a second look at me, and — *buy some honey.*

In an architect's office where half a dozen men were bending over their work, too busy to look at me, I watched them a few minutes, when I said, "Gentlemen, straighten up: take a long breath and a moment's rest while I show you a structure that, for architectural design and economy of space, the builders have never been excelled." Of course they listened to me and bought some honey.

One thing I heard so much it got to be old, was, "Don't you feed the bees glucose and such things, and then sell it for honey?" which always brought forth a snappy "No, sir!" Some would insist it was done, when I would challenge them for the proof; and if they were too insinuating I would deny it, for the simple reason that those who *could* do such a thing *wouldn't;* and those who would, *can't.* Then I would explain the process of feeding bees, showing them why and what we fed for; that a bee-keeper's professional pride led him to produce pure honey rather than the accumulation of money in a fraudulent way; that they were "honest," "and," as Bro. Gardener, of the Limekiln Club said, "consequently very poor."

Another question I was often asked, "Did you make this honey?" I would answer, "No, sir; the Lord made it, and made the bees to gather it, and gave me sense enough to get it. How many jars did you say you wanted?"

I learned some things as I went along. One was, the lack of knowledge of bees and honey. I met only two persons who had read a work on bee-keeping, and they had read "Maeterlinck."

I am convinced that honey is not a commercial article, such as sugar, beans, and corn, but is a specialty requiring different methods for its sale. It is more of a luxury which would be indulged in more if men were sure it was pure honey. Whenever I could sell a jar to a man my labors were over, as he would usually greet me the next time with "Say, bring me another jar of that honey," and nearly every mail brings requests for it. One postal lies before me, received to day, asking for 6 jars. I sold hundreds of pounds, and collected every cent. Some paid in advance. The Hartman Sanitarium took 40 lbs.; a hotel 50 lbs. Barbers bought more liberally than any other trade.

A traveling salesman overheard me talking in a piano store. He bought 6 jars, which I put up in a box and shipped to him to his home in New York city. Another had 4 jars sent to his home in Pittsburg, and so I might go on, but this is enough.

I should like to say something about commission men, but hardly know how to say it. All winter I had my eye on the honey displayed by them. It was all comb. If there was any extracted I failed to see it. I have come to this conclusion: I would rather have my honey at home than to have it there. I believe I could take better care of it, sell it quicker, and get more for it. Commission men do not create a demand —

they only supply one already created. If I sent my honey to a commission house I should feel like doing something to create a demand for it. There is a demand for apples, oranges, bananas, cabbage, and the like, from hundreds of dealers, because they are necessary articles of food; but you put a lot of honey down alongside of such things, with only such demand as comes from the grocers, and with the commission man loath to push it from lack of knowledge of its virtues and merits, it is readily outclassed. Honey is a specialty, and in a class by itself; and the almost universal suspicion of adulteration has a tendency to keep it there. This prejudice I tried to break down, and feel that I succeeded with most I talked to, and feel that I did more to enlighten the people on the mysteries of the bee than perhaps ever was done before by one man in the city of Columbus. I don't know of any better or cheaper way to clear away these doubts than for every bee-keeper who has honey to sell to go in and sell it himself, right at home where he is known; stand square on your feet, tell them what you know about bees, and you are bound to succeed.

That blessed old typewriter! I wonder where it is. No doubt it has long since been consigned to the scrap pile, or has become reincarnated in a more modern one, presided over by some pretty blue-eyed girl with a pencil in her hair and a pink sack; but it will never do a more noble deed than the silent lesson it taught that country boy more than twenty years ago.

Pataskala, Ohio.

[There is no possible doubt but that the stories about manufactured comb honey have done a fearful damage to the honey business. See editorial on this subject elsewhere.—Ed]

BEE-KEEPING IN CENTRAL CALIFORNIA.

Fred M. Hart and His Apiaries.

BY TRANSIENT.

Early in March of this year the writer had the pleasure of meeting many prominent apiarists of Central California at their Central California Bee-keepers' Association in Hanford. As was natural, he inquired into things apicultural. At this time but an inch or two of rain had fallen, and all agreed that it would be a very poor year for bees in this part of California. Since then we are told the honey crop is a failure. Many were feeding then to keep bees alive, when, usually, honey would be coming in. The present foul-brood inspector, Fred M. Hart, of Hanford, took us in charge, and, in his light rig, soon had us viewing the apiaries in the locality nearest Hanford. At his fine country residence shown, we were made welcome by his wife. She is interested in all he does, and spoke of E. R. Root's visit when on a trip to California. Mr. Hart's little boys are bee-men too, or think they are. The home they entertained you in has since burned to the ground. In the views shown in the large plate (except the top one) can be seen our friend in his out-apiaries. He, too, expects no crop, but goes on with their care in true bee-keeper style, keeping them in good condition for another season. In the top view of the large plate he is seen on one of his tours of inspection for foul brood. He is experimenting with formaldehyde being aided by a retired army doctor who has had experience with its use as a disinfectant.

As his locality is overstocked he has his bees in five different yards; but with the aid of one man he gets around to them all.

Mr. and Mrs. Hart are seen in front of their home in the view, and their hearty welcome given a stranger bee-keeper will ever be remembered by me.

FOUL-BROOD INSPECTOR FRED M. HART AT HIS HOME IN THE SUBURBS OF HANFORD, CAL.

[I remember with very much pleasure the delightful visit I had with the Harts at their beautiful home near Hanford. These people are among the few

FOUL-BROOD INSPECTOR FRED M. HART ON A TOUR OF INSPECTION; HIS OUT YARDS.

bee keepers in the United States who obtain their sole means of livelihood from bees. They are all bee-keepers, and intensely interested in every thing that pertains to their favorite pursuit

At the time of my visit, trouble was brewing over the pear blight situation. The pear-growers had threatened to poison the bees if the bee-keepers did not remove them from the vicinity of the orchards, and matters were becoming somewhat strained.

I remember particularly with what apprehension Mrs. Hart looked upon the situation. Here they had built up a beautiful home, had a fine bee-range, and every thing was going on lovely; and now to feel that they did not have a right to conduct their business on a live-and-let-live principle was not pleasant. Well, as our readers know, a compromise was effected at that time, and since then I believe the pear-growers are not as ready to accuse the bees of the spread of the blight. Mr. Hart and others for one season, as an experiment, moved all the bees from the immediate vicinity of the orchards during the time they were in bloom. This, so far from accomplishing any good result, did not affect the blight either way. It continued to spread just the same. Insects and wild bees that were beyond control of man, it was demonstrated, would scatter the virus from tree to tree; and the presence of the bees under domestication did not materially affect the situation.

AN OUT-APIARY OF FRED M. HART.

Mr. Hart, from what I know of him, would make a good foul-brood inspector. He is tactful, and enjoys the respect, not only of the bee-keepers, but even of the rabid fruit-growers, for he, together with myself and some other bee-keepers, visited a number of them. All of them greeted our friend most cordially.

With regard to the treatment with formaldehyde, I should like to have Mr. Hart some time at his leisure tell us how successful he has been with it.—ED.]

CUBA AS A BEE COUNTRY.

A Few Mistakes Corrected.

BY C. E. WOODWARD.

I beg permission to correct a few mistakes I have noticed of late that have crept into GLEANINGS. It is not to be supposed that any editor of a bee journal is a revised and enlarged walking encyclopædia with a patent index, therefore it is nothing strange that misconceptions should find their way into the columns of good old GLEANINGS. But be that as it may, I wish to say that Cuba as a honey country, taking one year with another, in my judgment can not be excelled in regard to producing a good crop of honey here. It requires just as much good judgment and experience as anywhere in the world. One may produce a crop of honey a little easier here than in some other countries, but it needs intelligence just the same.

The writer has at this moment several apiaries in mind where cheap native Cubans are at the head of them; and what is the result? I will tell you. It is no honey, lots of foul brood, and destruction. Once these were fine up-to-date American apiaries—thousands of dollars thrown away for the sake of saving a few dollars at the time in employing cheap Cubans. On the other hand, the native will never make a good apiarist. As a rule they are illiterate. The most of them can not read, and of course that holds one back. Another thing, they try to see how little work they can do in the longest time. But, of course, all this will change in time. The expert produces large crops, keeps out foul brood, keeps his bees strong, put his honey on the market in better and more attractive form, and gets better prices for his labor performed.

As a rule the natives know nothing about the production of comb honey, and they are sure to put off for to-morrow what they should do to-day, and that will not do in the bee-keeping business. I presume some of the men who discuss and encourage native labor believe in low-priced men and high-priced wax. I say, if a man is proud of his apiary he will have every thing in the best of order — every comb built on full sheets of foundation, and every frame well wired — American hives, American labor, American frames, and Cuba will do all the rest. I here ask Mr. A. I. Root to point out every fault that he saw in my apiary while at my house. It will not hurt my feelings a bit to have every fault he saw go into print; and I hope, after he sums them all up in order, that he will come and make me a much longer visit than he did the first time. Of course, I am thankful for the one he did make me; but if he will come I feel sure I can prove every word to him that I write here. Moreover, there is plenty of room here in Cuba for good American apiarists. There is always plenty of room at the top. A good man can come here and make good money in the bee business; but, of course, he must know what he wants and then go ahead. I have taken as much as 300 lbs. of very nice comb honey from only one colony in an average year; but, understand, I do not say that all colonies will produce that much; but I do say that Cuba is a fine country for honey; in fact, it is the natural home of the honey-bee.

I also see statements in bee-journals that foul brood is everywhere in Cuba. That is not true. All disease is caused by man. The same holds good with foul brood. A good apiarist will not allow foul brood to remain in his apiary very long; and as regards insects, they are not to be thought of in comparison with some States in America.

Guanabana, Cuba.

[When I visited friend Woodward's apiaries I was a good deal discouraged at the trouble we had had with robbing in our own apiary at Paso Real, and also at the difficulty we had in queen-rearing. I have since had reason to believe that a great deal of our trouble there was on account of having the apiary too clean, and the hives arranged with too much mathematical accuracy. They were just alike in color and situation; all the grass and weeds were cleaned out until the whole thing was exposed to the full blaze of the sun. This did very well in January and February; but as the sun got warmer it did not answer. Friend Woodward's home apiary is under the shelter of large trees. In fact, the sun hardly gets down to the ground at all. Besides these tall trees there are various bushes, perhaps higher than one's head, trimmed up so as to be out of the way of the apiarist; but the ground around the hives is almost as clean and smooth as at Paso Real. I can not think of a thing to criticise or find fault with in that home apiary. It was really a revelation to me. Friend W. opened his hives without a bit of robbing – no robbers chasing him about from one hive to another. He was raising queens successfully, even in small nuclei, with as little trouble as we do it here in June. My arrangements were such that I did not have a chance to look over all the out-apiaries, but those I saw were in charge of educated American bee keepers, and every thing was moving along very much as in his own home apiary, but perhaps not quite equal to it. He had not been preparing for me, for I came upon him without notice, unexpectedly. I think he is a little severe on the native Cubans; but it is true they labor under a great disadvantage in not being able to read the literature we have on bee culture. We expect to have our A B C book, somewhat abbreviated, in the Spanish language very soon, and this will be a great help; and I want to add, also, that at least some native Cubans are splendid workers. Of course, they are not familiar with American methods; but I saw Cubans who would crowd a Yankee pretty hard, especially when at work at something he was brought up to. I did not see any foul brood or any trace of it in any of friend Woodward's apiaries.—A. I. R.]

* * *

THE GOLDEN STRAINS OF ITALIANS.

Their Peculiarities as Viewed by Different Bee-keepers.

BY E. F. ATWATER.

For some time I have watched the discussions in GLEANINGS and other journals, as to the best race or strain of bees, and in this connection I have noticed that many writers have failed to realize that locality and the "personal equation" may have much to do with the problem. In GLEANINGS, Sept. 1, 1903, page 759, is an article relating experience with the golden Italians, by J. W. Guyton, M. D. Mr. G. accuses them of being "gentle enough, fair workers, slow to enter sections, crowd out queen, smaller than three-banders, therefore can not carry as much as three-banders. Not prolific, some of them bent on superseding."

I have had experience with five strains of the goldens (perhaps all more or less related). Among them some were fully equal in honey-gathering to any bees I have owned; others seemed not hardy. My colonies of golden stock are not slow to enter sections, compared to the leather strains. One Idaho bee keeper, living not very far from Parma, finds a certain strain of goldens so superior that he has introduced such queens into nearly all his colonies.

As to size, why can't we have measurements made, and *know* if the best goldens are smaller than the three-banders? I, for one, don't believe it. Perhaps F. B. Simpson or A. C. Miller will tell us about the size of various strains and the capacities of the honey-sacs.

On page 55 of GLEANINGS for 1899. Mr. W. Z. Hutchinson, in advertising a certain strain of bees, quotes a letter from Oldenburg, Ind., dated June 14, 1899, saying, "Golden Italians, which are as lazy as they are prolific." But W. Z. H. adds, "I have had some strains of goldens that were excellent workers."

H. C. Morehouse, in *Rocky Mountain Bee Journal*, Aug. 15, 1902, writes: "The yellow Italians breed up quickly in spring, but dwindle badly during winter, and are almost as vicious as full-blooded Cyprians. They are good workers, but better robbers, and their *great prolificness* keeps them strong at all times, except in early spring."

H. H. Hyde, in Gleanings, Jan. 15, 1902, says, "We have found these goldens to be good workers, and a very good bee for climates that have a short season or where there is only one short honey-flow."

C. Russell, Gleanings, 1900, says, "I would not take the best five-banded golden in the world as a gift."

J. B. Scoggins, in Nov., 1901, *Southland Queen*, says, "For honey I want the five-banded Italians mated to black drones, as they will always roll up the honey."

I have seen and handled exceedingly gentle goldens, ugly goldens, good and bad goldens, and the same of the three-banders. Nearly every fault can be laid to the goldens, and, on the other hand, there is not a virtue possessed by any strain of Italians which some strains of goldens do not possess. In the way of beauty, I have never seen bees which, to my eyes, would compare with a colony of "golden albinos" which I saw in the queen-yard of Mr. Thos. Chantry, of South Dakota. I would be willing to join J. M. Gibbs' "Three banded Italian Bee Club," and just as willing to join a "Golden Italian Club."

As to the foreign races of bees, some of them, in some traits and for special purposes, greatly excel the average Italians. I have quite a number of Carniolan queens mated to Italian drones, which makes, almost always, a gentle bee, not much inclined to swarm, caps honey whiter than average Italians, shakes off extracting-combs somewhat easier, more prolific, builds up somewhat better, and breeds during harvest a little more than Italians; so you see that I am not wholly satisfied with any strain of Italians yet tested.

It may not be generally known, but it is a fact, I think, that some of the world's most extensive bee-keepers prefer the Carniolans Previous to the death of Capt. Hetherington, Carniolans were largely introduced into his extensive apiaries, as he had found them "far superior in honey-gathering."

W. L. Coggshall also uses some Carniolans, though W. W. Somerford once wrote in Gleanings that to the introduction of a non-swarming strain in his apiaries was due the greater part of Mr. Coggshall's success. If the Carniolans are a non-swarming strain, the fact has not previously been mentioned.

In April, 1901, I called on L. M. Brown, of Sioux City, Iowa, and found him using a great many goldens from a noted Florida breeder. Mr. Brown produced extracted honey at that time, and found this strain of goldens to be unsurpassed.

Doolittle, in explaining his position in regard to the relative merits of the leather and golden stock, was unable to see any but "minor differences" between them, while H. E. Hill once wrote that, in a poor honey-flow, the goldens "were scant and scattering layers," and that their brood would often produce "cute little golden drones" instead of workers. I have heard that, in rearing golden queens, an abnormally large proportion of them turn up missing in the nuclei. Finally, I have not found a strain of goldens sufficiently superior to pay me for the trouble of rearing many golden queens and re-queening my apiaries.

Boise, Idaho.

Heads of Grain
from different fields

HIVING SWARMS FROM INACCESIBLE PLACES.

Dr. C. C. Miller:—Please answer the following questions:

1. How long should one leave a swarm on a limb before touching it?

2. When the bees settle on a lot of small limbs and on the ground, how do you handle them?

3. If they get on an old gray-willow stump that you can't move, how would you handle them?

4. After studying for a long time I got a colony last spring, but did not let it swarm last season, but divided it until I had five colonies which wintered well, only about a handful dying. When warm weather came, two colonies quit their hives and went in with the others — at least I suppose they did, as they disappeared, and the others seemed to have many more bees.

5. The other day I heard bells ringing and pans beating, and thought the house was on fire. I rushed up from the garden to find a swarm settling in a clump of wild roses, and on the ground at the roots, and on every dry stick lying around. How would you have hived that swarm? I used the little bee sense and what horse sense I had, and cut off what I could, swept the rest into a pan, and put them into the hive. I left the hive there. At night I picked it up and placed it with the others; but most of the bees left it the next day. There is a lot in it yet, but nothing like the lot I gathered up. Where do you suppose they went?

6. Yesterday another lot went out about

20 feet from the hive, and settled on an old burnt stump. Now, you may laugh as much as I did. I commenced to gather them in handfuls, and put them on the hive, and most of them would fly right back. Oh, no! swarming bees don't sting. They sailed into me wherever my pants were tight—on my shoulders, face, wrists—and I fled to the house for coat, veil, and smoker. Stings don't bother me two minutes. Back I went, rigged the hive against the stump, and packed them in by handfuls. The seat of my pants was tight, and I felt as if I were sitting on a cactus-bed. All at once they started on a dog trot into the hive, and I left them there till night, and to-day they are fine, and I don't know where they stung me. They have all stayed put.

7. I would cut the queen's wings, but I am waiting for some old bee-man to come along and show me how to find her. My old eyes are not very good without a veil, and it bothers me to find the queens.

8. What do you think of "buffalo chips" for a smoker? I find them as good for bees as for mosquitoes. JAMES FULLERTON.

Red Lodge, Mont., June 18.

[Dr. Miller replies:]

1. No longer than to give it time to settle in a somewhat compact cluster. Otherwise there is danger that scouts may entice it to some selected place. Many times, however, a swarm will hang for hours.

2. Take a hive containing, if possible, some drawn-out combs, and, if convenient, a frame of brood of all stages, with cover only partly on, and without bottom-board; set or hold it close over the bees, and let them run up into the hive. Or, set the hive, with bottom board on the ground close to the cluster, letting the bees run in at the entrance, encouraging this by lifting a few of the bees and placing them directly at the entrance. Cut off the small limbs, and place them (bees and all) at the entrance.

3. Set the hive with its entrance touching the cluster, if necessary putting under the hive something to make it high enough; then keep dipping a few of the bees from the cluster with a dipper or a big spoon, or even a bit of board, and place them at the entrance until the bees set up a line of march for the hive, and then the bees will do the rest.

4. Bees, especially weak colonies, have the bad habit of sometimes deserting their hives in spring and entering others, and I don't know either the cause or the cure.

5. Very likely I should have hived them much as you did, as indicated in answer 2. The bees that deserted may have gone back to the mother colony; or they may have swarmed out and gone off with the queen, the field bees that were out at the time returning and remaining.

6. However sweet-tempered swarming bees may be, one feels better to be protected. With veil pinned tight down, close wristbands, and trousers in stocking-legs, one is safe against stings except on the hands, and I'd rather take the few stings I get on the hands than to be bothered with gloves.

7. Now look here; don't you wait for any "old bee-man," but go right to work looking for queens, and you'll find it easier than you think. Put on your specs; and with a *black* veil, and so seated that the veil in front of your eyes is in shadow, you will not have the least trouble in seeing well enough to find a queen.

8. There are other things you might like better than "buffalo chips," but smoker fuel is largely a matter of convenience; and the thing that's most plentiful, and easiest to get, is generally the one to prefer. Just now a chip-yard is the handiest for me.

Marengo, Ill. C. C. MILLER.

THE THICK TOPS OF HOFFMAN FRAMES IN CUBA; A REPLY TO DR. MILLER.

In Straws, June 1, Dr. Miller disagrees with me on one point about the Hoffman frame. That is, he states that they do not place too much wood between the brood and the sections, and gives as proof in his disagreement that "Bits of dark wax are taken from the brood nest to assist in capping the section"—a valuable observation that would outweigh some of the objections to the Hoffman frame in a locality where the honey-flow comes during warm weather.

But for Cuba with our honey-flow in cool or cold weather, those broad thick top-boards of the Hoffman seem to suggest to the bees the idea of a poorly made cover, and they in many cases the past winter, which was a very severe one, proceeded to seal up solid between the thick top bars, entirely isolating themselves from the supers containing bait-sections and full sheets of foundation, while colonies of apparently the same strength in the same yard, which were on Simplicity frames, left the top-bars comparatively free of wax, and proceeded to enter sections.

In the spring, however, after the weather became warm I occasionally found a section or two of drone brood in supers above Simplicity frames where starters were used, and all combs below containing drone comb were removed to hives worked for extracted, with excluding zinc between to keep queens down, and straight all-worker combs put in their places, this being done to discourage swarming. These occasional sections of clean white drone brood are of no apparent disadvantage, for the bees fill and cap the sections of honey quicker in such supers above Simplicity frames. The drone comb is cut from such sections, and starters are again put in, which is done as soon as the super is filled and removed; for leaving supers of honey on the hives in spring is not advisable, as it encourages swarming, and the honey becomes travel-stained. A super of foundation is preferable if placed on top of the super which was put on a few days previous to removing the full one.

For moving bees, the Hoffman frame, of course, has its advantages; but they are greatly outweighed by their clumsiness and inconveniences for uncapping, difficulty in removing first frame, excess of wood for cool weather, and that little wedge is too small and thin to hold in foundation which is not wired.

In editorials, June *Review*, Editor Hutchinson, page 202, in referring to a former question asked by him, and giving a solution which I offered him, restates the matter so that it implies or leads one to believe that he means that it might be possible that a *clipped* queen, tested, and sent out by him to customers, *remated in the hive* after being introduced, producing *hybrids*. That is an extraordinary question, and I solicit an answer from the editor, from Dr. Miller, Mr. Doolittle, or some of our other past-grand masters. As for myself, I think it was only some case of reverting to type or conformity to type of ancestors.

F. N. Somerford.

San Antonio de los Banos, Cuba.

[Regarding queens mating the second time *after* they have begun laying, I have already expressed my doubts in these columns. I do not yet remember seeing a case where it was absolutely shown that a queen once producing pure Italians was afterward the mother of hybrid or black bees. There is such a large chance for the old queen to die and to be replaced by a daughter that looks exactly like her that one is liable to draw a wrong conclusion. It has been shown pretty conclusively that one fertilization is sufficient to last a queen a lifetime. As bearing on this point, Dr. E. F. Phillips, of the University of Pennsylvania, in Gleanings for March 15, of this year, said:

> The queen returns to the hive later, carrying with her the copulatory organ of the drone, and after a little this is ejected. The essential part is, however, that her spermatheca, or seminal receptacle, be filled with spermatozoa during the marriage-flight. The number of these has been estimated at from two to twenty million, and it is at least certain that she receives enough so that she can keep on laying worker eggs for four or five years. The spermatozoa are the essential things in this fertilization, and not the fluid in which they float, and these do not divide or increase in number in any way after they enter the queen.

—Ed.]

PREPARING COMB HONEY FOR MARKET.

I herewith enclose a view taken recently, of samples of my honey and how I put it up in neat blue wrappers with my name and address on each package for regular local customers. The unwrapped sections are not of my best grade, but No. 2. I sell my best grade at 20 cts. per section at the beginning of the season, and my No. 2 goes at the same price later on when ten-cent country box-hive honey has played out. I sell at 20 cts. all I produce, while others sell at 10 cts. and less.

SECTIONS WRAPPED AND UNWRAPPED.

The past spring proved one of the poorest I have ever seen, as there was no rain during March and April, and it was unusually cool. My bees are moving along very well at present, and are working on linden, buckwheat, and sweet clover. I send you a cut of an experimental patch. I also have another patch of considerable extent. In some places the plants have attained a height of eight feet. These were small plants taken up in Warren Co. last July, and set out here during the hottest weather we had. I also planted a peck of seed procured from your house. I have had no trouble at all in getting a fine stand, and now it is a solid mass of blooms which are covered with bees.

I will say for the benefit of Dr. Miller, that, two years ago, I planted half an acre in alfalfa, which grew rank and produced considerable honey. I made this statement in GLEANINGS a year or two ago. I had no trouble at all in getting it to grow, and the bees gathered considerable honey from it. The only trouble I had was in getting rid of it. In fact, there is some of it here still, and likely to remain.

WALTER L. WOMBLE.

Raleigh, N. C., June 20.

[Friend Womble is an enthusiastic amateur; and when I say "amateur" I mean one who has come to be an expert from mere love of the art. We have many such among the professional men and suburbanites, and it is these people who, because of their "pull" with the press, are going to help us put down the sensational canards about comb honey.

But our correspondent is silent regarding the lady who helps to adorn the picture. I assume that she is the "better half," and, if so, friend Womble's "right-hand man." No wonder the honey is nice.—ED.]

CUBAN BEE-KEEPER GETS INTO TROUBLE WITH THE AUTHORITIES.

Mr. George Plant, private secretary to the British Minister, and who is an amateur apiculturist, has lately had a sad experience with bees which ought to be a warning to any intending bee-men who expect to come to Cuba and go into bee-raising.

Mr. Plant has had his bees in the little town of Guanabacoa, a surburb of Havana, and which is reached by the ferry across the bay. There is a municipal law which is in force in nearly all the small towns of Cuba, where bees are classified as "fierce animals," and that no bee-man can locate a ranch nearer than about one-fourth to one-half a mile from a town. There was a candy and sweet factory in Guanabacoa, and the man brought a chunk of candy to the mayor, in which were embalmed a goodly number of poor bees, with the request that the mayor enforce the law. So our bee-man was duly notified of the law, and told to move within thirty days, under penalty of a fine of $5.00. Being unable to find a location, and wanting to have his ranch near by so that he could attend to the bees himself after business hours, he neglected to move within the specified time, and the fine was accordingly assessed. Then the ranch was moved, when Mr. Plant, hearing of a possible purchaser in town, moved them back to the old location to show the ranch off to better advantage. The purchaser did not turn up, and the usual fine was then assessed; and now as this gentleman can not get rid of the bees, and is not able to get his old location back, as the owner now has use of the land, the poor bees will meet an untimely death by suffocation.

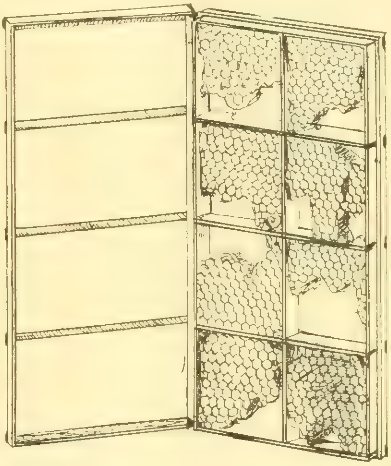
I would just sound a note of warning to any intending bee-keepers who may want to settle here. Don't get too near the towns or villages through the country, without making all inquiries necessary beforehand, or you may be compelled to move just at the beginning of the honey-flow or an equally inconvenient time. This apiarist now has a number of supplies to sell cheap, and is going to give up bee-keeping as a pastime.

L. MACLEAN DE BEERS.

Havana, Cuba, June 22.

SAFFORD'S EXTRACTING-FRAME FOR UNFINISHED SECTIONS.

I herewith send a sketch of a very handy frame for holding partly filled sections while extracting. The frames (one for each side of the extractor) should be made of ⅜×1-inch stuff, and should be made ¼ inch larger inside than the exact size that the sections would require, in order that the sections may slip in and out freely. For 4¼×4¼ sections, make it 8¾×17½ inside.



As the illustration shows, the frame is made in two sections, and hinged together so it will open and close like a book. The strips shown are of heavy tin ¾ inch wide, nailed on the outside of the frame at proper distances to hold the sections inside.

To operate the frame, open it and set it up in front of the uncapping-box; uncap the sections and place them in the frame. When full, close the frame and handle it the same as an ordinary brood-frame. This is the handiest arrangement I have seen for this work.

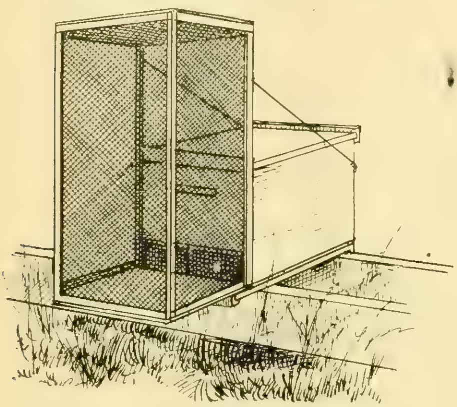
Salem, N. Y. E. Y. SAFFORD.

[Your extracting-frame for unfinished sections will work satisfactorily; but a simple frame of the width of the section used, and just large enough to take in four, will be just as good, or better, and much cheaper. There is no advantage in having the frame made in two parts hinged together, other than that the sections will be held in place better. But a simple frame, if handled carefully, will prove to be just as good in every way, and easier to get the sections in and out of.

I see our artist has made your frame hold six sections instead of four. The former would not go in an ordinary standard extractor.—Ed.

DON'T LOSE YOUR SWARMS; A SUCCESSFUL SWARM-CATCHER; ALSO A SWARMING-TRAP.

It is common in the large apiaries of California for six or even twelve swarms to come out at a time. I have known of their doing this once, and alighting in one pile. I have also been bothered with an occasional after-swarm going into several different hives, resulting in the loss of one or more queens. Last season, therefore, I made a swarm-catcher which consisted of a frame 30×14×10 inches in size, with the sides covered with wire cloth. The board cover for the top was removable, while the bottom was nailed fast and chamfered on one side to allow a ⅜-inch bee-space from the hive into the swarm catcher. A strip of wood an inch wide, along the entire length of the swarm-catcher, extended the bee-space into the inclosure. I then took two pieces of wire cloth 3 inches wide and 14 inches long, and tacked one on each side of 4 strips of wood, ⅜×¾ inch, by 3 inches long, making a bee-space ⅜×14 inches. This I put in front of the bee-space before mentioned, so that the bees, in passing into the swarm-catcher, traveled horizontally one inch, then upward 3 inches, between the two pieces of wire cloth. I fasten this device in front of the hive by means of a string from the upper part of the catcher to the head of a wire nail bent like a fish hook, and with the point sharpened, which will catch on to the back of the hive. This nail should not be attached to the cover or super, for they sometimes come off when a large swarm goes in. I had two last year, and hived about fifty swarms with them, with only one partial failure; for one swarm was partly out when I put it on, and about half of the bees settled in a tree.



After fifteen or twenty minutes the swarm is all in, and the bees quiet. I even fix a hive in the shade of one of my trees, take my swarm which is secure in the catcher to the hive, remove the cone from the catcher, and shake the bees out in front of the hive in the usual manner. Or, if I am in the midst of some work that I want to finish I can set the swarm in the shade until ready to hive it. Sometimes, when I have had them both in use at the same time a third swarm would come out and alight on the outside of one catcher; but it is an easy matter to brush those on the outside in front of an empty body, and then hive the other a few rods distant.

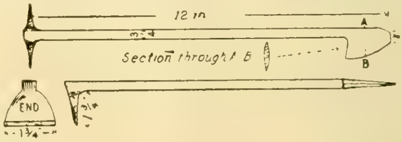
There are a good many advantages in the catcher, the most important of which is that over the old way of letting the bees choose their own place to cluster. This is especially true where there are tall trees, or when the apiarist is a lady, or when the bees are left in charge of a younger member his family. J. M. Mack.

San Diego, Cal.

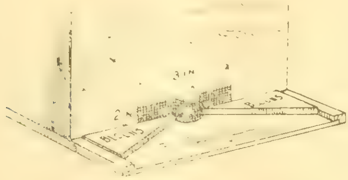
[Swarm-catchers similar to this have been illustrated at various times. There is no question but that they serve a very useful purpose at times; but the chief difficulty is to get to the hive that is casting a swarm in time to catch the bees.—Ed.]

PHILLIPS' HIVE-TOOL AND BEE-ESCAPE.

In Gleanings for Feb. 15 I notice a hive-tool and an escape pictured and described; and as I think my inventions in those lines are superior, I send you herewith sketches and descriptions of them. The hive-tool I find indispensable, and never go to my hive without it. I made a wooden model and took it to the smith, who forged it in steel and tempered it. I then ground and filed it up myself. End B is brought to an edge all round, and is used to separate hive-bodies, frames, etc., and for levering frames together at the bottom. As a lifting-hook, put down between the frames, turn the hook under the top-bar, and "up she comes." The extreme end is squared for ¼ inch, and makes a good screwdriver. End A is sharpened to a chisel edge, but not so sharp as to cut the hand, and corners just rounded off. It answers as a scraper for the tops of the frames and bottom-boards, to remove brace-combs, propolis, etc. When placed between the tops of the frames and end B, and swept gently round, the tightest frames must part. It also makes a hammer. Other uses will occur to the user.



As for the escape, I think the sketch will be clear. Place the bottom-board; pile hives of supers on, with board on top; put a piece of wire cloth against the front of the hive or super, and blocks against the wire cloth. Bees will climb up the groove, and fly away. They or others coming about can not get in or choke the entrance. Every bee will be out in a few hours.



If the entrance in the bottom-board and blocks can not be used, tack wire cloth to the front of the hive, seeing that bottom and side edges are bee-proof.

WILLIAM J. PHILLIPS.

Moouta, South Australia.

[This hive-tool, doubtless, will prove very excellent; but usually I prefer something smaller that can be held in the hand all the while when one is working with bees and combs. An all purpose tool is sometimes too much of a good thing.

The bee-escape will work satisfactorily when robbers are not bad; but you may rest assured it would not take very long for them to find their way down through it into the hive or super.—ED.]

PEAR-BLIGHT; THE RANCHMEN AND THE BEES; A CORRECTION.

On page 588, June 15, I see a statement that is very misleading to one who knows any thing of the circumstances. The fact of the case is, they did go around to see if the ranchmen would dispose of their bees, and found some 500 colonies. They did not buy any, and none have been removed from the valley, and we have but little blight to speak of. Now, if we were to try the removal of the bees from the valley it would be a big undertaking, as the cedars on the sides of the mountains are full of wild bees, and it would be hard to get all of them. I think that this season will prove to the ranchmen it is not the bees that spread the blight, and they will have to look for some other cause. B. F. COWGILL.

Paonia, Col., June 27.

BEES POISONED BY SPRAYING; BEE-STINGS IN A QUEEN'S BODY.

During the fruit-bloom the Omaha bee-keepers suffered severe losses on account of

This stack of alfalfa hay is some 600 ft. long. and as high as men and machinery can make it. There is one here over 900 feet long. It is on the Reservation farm near Lovelocks, Nevada.

spraying. Aug. C. Davidson lost 60 colonies out of the 70 that he successfully wintered. Mr. Lorensen, of Albright, lost 30 colonies out of 35, others report from 50 to 80 per cent losses. My loss is an even 50 per cent. Eight years ago, according to Mr. Davidson's statement, the Omaha bee-keepers suffered a similar loss. Mr. Davidson informs me of a number of instances where he has found one or more bee stings remaining in the body of "balled" queens. Mr. Davidson is the veteran bee-keeper in this locality.

I am very much pleased with the new department added to GLEANINGS, the "Western." J. A. JACOBSEN.

Omaha, Neb.

BEES POISONED BY SPRAYING; NO OHIO LAW AGAINST SPRAYING.

Is there a law in this State against spraying fruit in bloom? I lost so many bees from this cause this spring that there were not enough left in the hives to cover the brood, and it died in the cells, and I am not getting any surplus yet, although white clover is in full bloom. Some colonies were so strong that I should have gotten some surplus from apple and locust.

I warned the man who did the spraying before he began, and he has told me since that he consulted the prosecuting attorney of this county, who told him that there is no such law in Ohio. Is he right?

Belpre, O. C. C. MILLER.

[There is no law in Ohio against spraying trees while in bloom, and there is really nothing that you can do. We shall have to get such a law. In the meantime I would suggest that you move your bees away from the vicinity of the man who sprays his trees. If he is of ugly temperament there is really nothing you can do except to "grin and bear it," or move your bees away during the time of year while he is spraying. I would suggest that, during fruit-bloom, you put them on a wagon and move them off a couple of miles, and then, after the spraying season is all over, move them back again.—ED.]

CALIFORNIA LIZARDS GUILTY AS CHARGED.

As regards lizards killing bees, p. 553, I say yes. If one kind of lizard will do it, then all kinds will so long as they have access to the bees. I lost six young queens by them this spring. I have seen them catch six or seven bees in less than ten minutes, and it seems to me they know they are in mischief. They dodge under the hive, and run to another one, and watch me from the corner. I have seen them catching bees by the thorax. I saw a lizard stung in its mouth, and you should have seen the fuss he made. In the morning and evening they are after the bees the most. I think the shot-gun is the best to rid them with. I have an old muzzle loader, as that suits the best for that purpose, as you can make two shots out of one — that is, make two shots out of one regular charge. I use the fine bird shot; but I have this much to say, that, outside of the bee-yard, I do not like to see lizards molested.

Peach Tree, Cal. B. SCHNUCHEL.

RIPENING HONEY AFTER IT IS EXTRACTED.

I found one of my hives was filled with honey nearly all capped, so I extracted a large lard-can full and one gallon over from that hive. Is there any special way to handle the honey, since it is not seasoned yet, or just let it stand in the can till winter? WM. J. ROOS.

New Hanover, Pa., June 29.

[If the honey extracted is a little green, and it may not be, it may be ripened by putting into shallow pans in a dry hot place. It should be allowed to stand about a month.—ED.]

KEROSENE OIL TO CHECK ROBBING.

Bees have stood the winter well so far. The honey crop was fine with most bee-keepers in this county. I had 21 colonies last season; got 200 gallons of strained honey and 104 lbs. comb honey. Common kerosene oil will check the worst case of robbing that I ever saw. Just rub a little around the crevices and in front of the hive. Did any of your writers ever try it?

Enloe, Tex. W. F. CHAMBLISS.

Vat! Blackberries already yet!
I vas in luck, aint it!
ouch! Dunnervetter
Vos it a bee, or some of dose live vires!

HIGH PRESSURE GARDENING
BY A. I. ROOT.

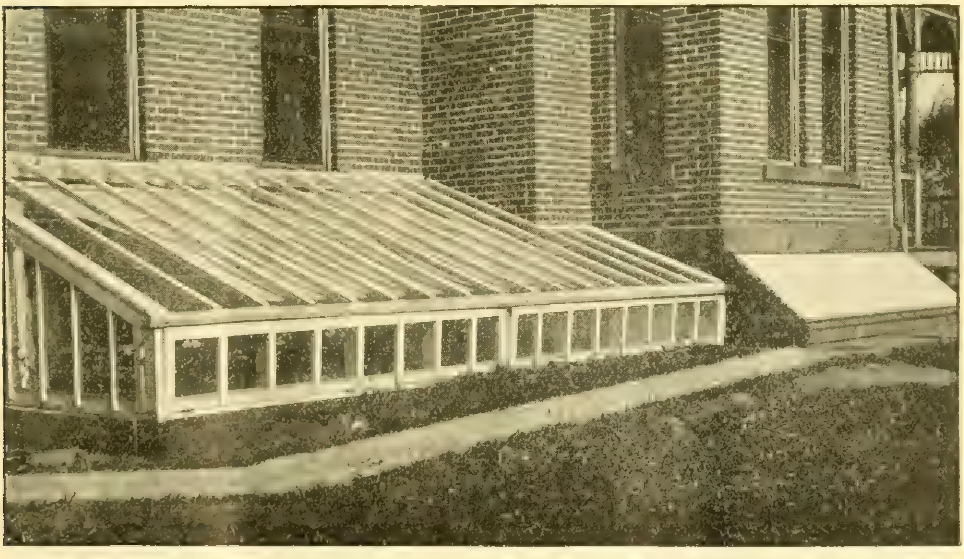
A GLIMPSE OF THE LITTLE LEAN-TO GREENHOUSE AND COLD-FRAME I HAVE BEEN TELLING YOU ABOUT. SEE P. 453, MAY 1.

I think the pictures will make it very plain how my little greenhouse is constructed. It is made so as to cover two windows that open into the cellar or basement. The cheese cloth used for shading during the hottest part of the day, that rolls up on curtain rollers, can be seen plainly in the picture with the greenhouse open. In the other picture these curtains are shown, drawn down so as to shade the glass. The side ventilators are not yet operated by ventilating machinery. In fact, during the summer time they with the south end sash are taken entirely off and stored away. There is a single path through the middle of the house, having beds nearly three feet wide on each side of the path. The entrance is near where I stand holding the south end sash. The hot water pipes run up one side of the path and down the other. They are the same pipes that warm our home, and seem fully adequate to keep up the temperature during the latter part of the winter. In case this should not be sufficient, however, I can warm it further by means of exhaust steam coming from the factory.

In one of the pictures you see a similar *cloth* covered structure. This is for very hardy plants in the winter, and for tender plants later on. The cloth cover swings up, as you see, against the window above. There is one window leading from this cold-frame into the cellar. These openings into the basement are very valuable in equalizing the temperature whenever it would be otherwise too warm or too cold. Such a cloth-covered frame can be made very cheaply. At the present writing, July 1, this cloth-covered frame is a perfect bouquet of geraniums, foliage plants, and a great variety of beautiful flowers. When I returned home after an absence of about four weeks, I raised my hands in wonder and admiration, and gave a shout of surprise at the brilliant and gorgeous display it had put on during my absence. If the women-folks who read GLEANINGS could see it just now, I am afraid their husbands would have no peace until they made them something similar. This cloth covering enables us to keep many plants weeks or months later in the fall without injury than we could do without it.

GINSENG, MUSHROOMS, ETC.

Look out for ginseng and mushroom companies that tell you how you can make a great amount of money with only a little labor and only a very little land or cellar room. Especially look out for the companies that promise to buy all you can raise, at a fixed price, no matter what the price is. Do not undertake to grow ginseng, or mushrooms either, until you have visited some honest man who is making a success of the business. I am obliged to keep talking about ginseng because so many women in moderate circumstances are continually asking if I think it is true that *they* can

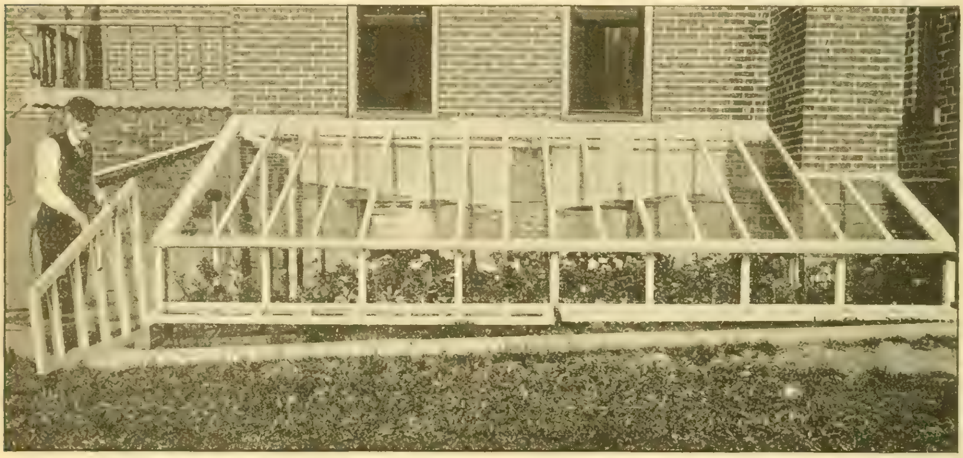


THE LITTLE LEAN-TO GREENHOUSE I HAVE BEEN TELLING YOU ABOUT; ALSO A GLIMPSE OF MY COLD-FRAME FOR FLOWERS, WITH THE CANVAS DOWN.

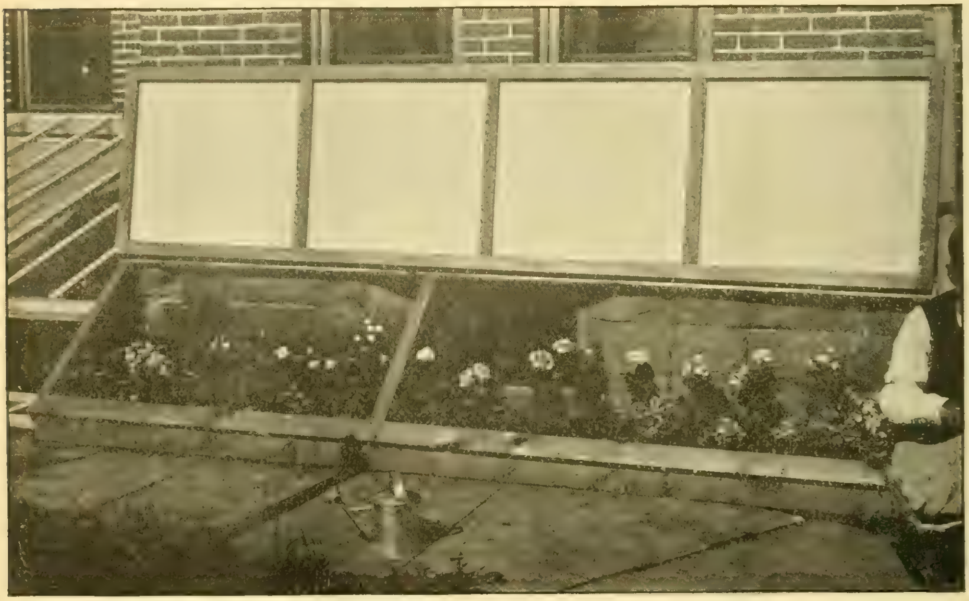
support themselves by growing ginseng in their little gardens. While it is possible that this may be done, I would much rather advise the growing of lettuce or other staple garden stuff that will sell in your own market; and until our doctors find that ginseng has some medical value, I do not think it a very respectable business, for men or women either, to encourage a heathen superstition. If the intelligent physicians of the United States and the rest of the world can discover by repeated tests that ginseng has a commercial value in medicine, it would be a different thing; but so far, even the pamphlets and advertisements from those who offer seed and plants for sale have been unable to scrape up any thing worth mentioning in regard to its real value in *materia medica*.

Prof. L. A. Clinton, Director of Storrs Agricultural Experiment Station, Connecticut, says:

> I have investigated carefully the ginseng industry of Central New York, having visited many gardens, and I am certain there is no profit whatever for the ordinary farmer. If one desires to purchase a few ginseng seeds, or, better yet, a few ginseng roots, to



VIEW OF THE SAME GREENHOUSE WITH VENTILATORS ALL OPEN AND SOUTH SASH REMOVED, AS WE HAVE IT IN SUMMER TIME.



MY CLOTH-COVERED COLD FRAME WITH THE COVERING RAISED.

experiment with, he will probably receive information enough to pay him for the money expended; but he should not be disappointed if he receives no returns from his investment, and he should charge up the money spent as tuition for his education.

OUR HOMES,

BY A. I. ROOT.

For this cause shall a man leave his father and mother, and cleave to his wife; and they twain shall be one flesh, so then they are no more twain, but one flesh. What therefore God hath joined together, let not man put asunder.—MARK 10: 7, 8, 9.

In a recent daily I saw a notice that, during a certain length of time in Cleveland, there had been 120 marriages, but during the same period there had been 116 divorces. All the religious denominations of our land, and the entire clergy, are protesting against this growing evil of divorce. It is striking right directly at the vitals of society and good government. It is breaking up the homes. In homes where there are no children the matter may not be so bad; but where one or more children are obliged to be present, they become witnesses of discord and disagreement between father and mother. This example and object-lesson will be apt to follow them all through life. May God help me while I undertake through these Home papers to put forth a protest and to offer a remedy for the disease that threatens this God-given institution of marriage. Our text gives a remedy, and they are the words of the dear Savior. For this cause—that is, in order that a new home may be started—shall a man leave his father and mother. Heretofore the father and mother have been the most important personages in the world to this young man; but when he comes to the point of choosing some good girl for his wife, as soon as the marriage ceremony is performed he breaks away from his father and mother, and cleaves to his wife. His relation to her is a *nearer* one than to either father or mother; and when it comes to the point, if such a point ever does come, of choosing between father and mother and the new wife, may God give him grace and wisdom to stand by the wife and hold her up, and let the father and mother go. Yes, if need be to preserve the relation of husband and wife unhindered, let him bid good by to the father and mother; and I firmly believe there are times when it is best to go away somewhere. By all means visit the old folks occasionally, and remember your parents; but if, in your opinion, too many visits or immediate proximity to the parental home in any way interferes with the perfect union and love of yourself and wife, then go away together where you two can have peace, tranquillity, and happiness. Let me say to the parents, do not undertake to "boss" the young people too much If they are going to make blunders, advise as well as you can; but when they seem inclined to prefer their own way, do not interfere. Let them learn by experience, as you fathers and mothers did years ago.

Now I am going a little further. If there is a family of grown-up children, let me suggest to those children not to be over-anxious about taking care of father and mother. If they seem disposed to take care of themselves in their old fashioned ways, let them do so. At one period in my life I persuaded my parents to leave the farm, come to town, and "take things easy." Mother stood it very well. Bless the dear old soul, she was *always* happy, and would be happy *anywhere;* but not so with father. He was like a fish out of water. He became blue and discontented and unhappy, and we finally decided all around it was a mistake to persuade him to leave the farm. As the farm was not sold they went back to it, and lived alone with the calves and chickens, garden and orchard, and found peace and happiness in their old age. In a like manner, Mrs. Root and myself in that cabin in the woods have enjoyed ourselves and the untrameled liberty it gave us—I was going to say as much as we did when we were first married; but that would not be true, for we enjoyed being alone—I feel almost tempted to say a hundred times more than when we were first married, although we were a very loving couple when we first started out together.

You may have surmised that I am coming over into the "mother-in-law" business; and while I feel like defending the mothers-in-law, and have defended them heretofore, I believe a good many of them have unwittingly made trouble between the young husband and his wife. Not long ago a mother-in-law, while in the young wife's own home, said something like this. Of course, they had been having a jangle:

"Well, what did *you* bring to my son, any way? You came here but little better than a pauper."

Why, my dear friends, just think how that faithful young wife must have been stung and cut to the quick by such talk! I suppose some of the women readers will say they would have "fired" the old lady out of the front door or back door in double-quick time. But this young wife was wiser. She took it meekly and patiently. The husband came in soon after; and when he could not quiet his mother by gentle means he took her by the hand and led her out of *his* own home and took her to *her* own home. He came to the point where he had to choose between the wife and mother. He did a manly thing — in fact, the only thing for a man to do, in standing by his wife (according to our text) and putting *his own mother* outdoors — of course, by gentle means—when she would not be civil to the wife of his choice. I knew this wife quite intimately. She has not only always been a meek, inoffensive, and lovable young woman, but a most indefatigable worker, not only indoors, in her domestic affairs, but out in the garden and on the farm, when work was greatly crowding. I recommended at once that the young people plant their own home at least several miles away; but the son and father were working the farm together, and it seemed a very hard matter to dissolve their business relations.

Another young man has or had a sickly wife, and he was brute enough to keep throwing it up to her during her sickness that she was a "bill of expense," and even figured up how much she had earned since he had married her, and how much her doctors' bills had cost him. Poor fellow! What a poor comprehension he had of the middle verse of our text—"and they twain shall be one flesh"! Think for a moment of a husband who can say to his wife, "It has cost me so and so to hire doctors and care for you while you were sick; and you have not all together, since you and I have been married, earned a fourth of that amount." Then the fellow had the cheek after that to suggest that she go home and stay with her father till she was well, letting the father bear the expense of her sickness. If she got well enough to be of some use, she might come back and be his wife again. What a comprehension of the marriage relation! The young woman went home to her father, but I believe she has no expectations of ever going back. She may have been at fault. I do not know any thing about that; but there is usually fault on both sides. I suppose it is possible that, if she had preserved a Christian spirit, and prayed for her husband daily—perhaps prayed with him and worked hard to earn his love—he might have been pulled out of his *awful* ungenerous and unmanly selfishness. The trouble is, too many women would say such a man could never be made any better; but where even one of the two is a professing Christian, and is full of the Holy Spirit, great wonders may be done—yes, even like changing the leopard's spots as the prophet Jeremiah expresses it.

During Mrs. Root's recent sickness, one day when she was getting better I leaned over and whispered to her, "You are a dear old girl." I remember the smile that came on her face as she replied, "Yes, I am beginning to think so myself." I did not exactly catch on; but when she added something about two nurses and four doctors, I saw she was worrying about the expense it made to get her well. But, thank God, such a thought never entered my mind.

It is not always the mother-in-law. The father-in-law or other relatives may stir up discord between man and wife. The last verse of our text says, "What God hath joined together, let not man put asunder." I suppose it includes the thought, let *no* man put asunder. Every man, woman, or child, should be exceedingly careful about doing or saying any thing that may destroy the harmony that exists or always should exist between husband and wife. I remember at one time in my life I was asked to listen to a complaint against Mrs. Root. I replied something like this:

"My friend, you may abuse *me* all you like—call me any thing you wish; but you will have to excuse me from listening to any complaint concerning Mrs. Root in her absence. My shoulders are broad. I can bear unkind words, and perhaps I could bear a club if it were not a very big one, and if it were not laid on too heavily, but when you strike the dear wife, I can not stand it, and you will have to excuse me."

First of all, and above all, *the Lord Jesus Christ*, who uttered the words of our text, should *rule* over the home. His presence should be recognized and honored, not only before every meal but before going to bed. Both husband and wife should pray for the presence of the Holy Spirit to crowd out *continually* all wrong and unkind feelings toward each other. You two may scold and find fault about the great cold unfeeling world if you choose; but *never* with each other. If you can not go as far as that, try very hard to avoid showing the least trace of unkindness, impatience, or indication of annoyance with each other *before the world*, and, above all, before the children. If there are differences to be settled, go away by yourselves where nobody can interrupt or overhear, then settle them, if necessary, on bended knee, with her hand clasped in yours. After this go before the children or the outer world, and let them see that you two are one in body, spirit, and in soul.

I have watched the growing spirit of discord among relatives and friends. It comes on by slow degrees. Divorces are not made up in a few days. The married pair seldom come to the point of separation until Satan has had them in control for weeks, months, or perhaps years. The perfect harmony and love that God intended *should* exist between man and wife are easily marred and put out of tune. It is like a delicate instrument that will hardly bear the disturbance of a gentle breeze. Let me illustrate; and if I mention something I have mentioned before, it will not matter. Something I wanted very much and could not find when I was in great hurry was out of place. Mrs. Root declared she had not seen it nor touched it. Nobody else was around our home at the time. I finally found it in a very unexpected and out-of-the-way place. I told her she *must* have placed it there. She replied quickly that *I* certainly was the one who placed it there, and had forgotten it. Then I retorted that the circumstances were such that it was *absolutely impossible I* could have placed it where I found it. I remember that, at the time, it seemed to me exceedingly plain to any one who would reflect a moment, that I could not have put it in that out-of-the-way place. She replied, somewhat stirred up, "And pray tell me why *I* have not as good a right to say 'the circumstances are such' that it is impossible *I* placed it there."

Now, that little bell of conscience I have told you about began ringing sharp and clear—"Lord, help!" and when that bell rings, I always stop. These words, "Lord, help!" came into my life soon after I became a Christian; and although this little alarm-bell is not often used of late years, it is there yet, and it *never fails*. May God be praised for it. Had it not been for the little prayer, "Lord, help!" I should have added, "*Such* reasoning is all you can expect of a *woman*, anyhow." I did not say it then, mind you, and I am exceedingly glad I did not. I have never told Mrs. Root I thought of saying it. May be when she sees it in print she will be "mad" yet, but I think not.

Well, this little jangle disturbed my peace of mind, and marred that delicate machinery, and threw it out of tune for several days—I mean the machinery I have been talking about that keeps up that holy bond of sympathy between man and wife. It was not until we two were alone up in the cabin in the woods that I made the wonderful discovery (at least wonderful to me) that this love, sympathy, and affection are more precious and more satisfying than any thing else in this whole wide world.

A great many men are in the habit of looking down upon their wives as not quite their equals in intellect and judgment and perception. Oh! I know, dear friends, just as Artemas Ward said he knew it was a bad plan to tell lies. He knew by experience. Even after I had been for years a professing Christian, I was in the habit of having moods or spells when I did not want to be talked to. Mrs. Root told me not very long ago that for years, while she knew, as a general thing, I liked to have her near me, there were times when I did not want to be disturbed. For instance, suppose I was planning my Home paper and making notes, she would say something, and I would not answer, because I was busy, or perhaps (God forgive me) I would rudely ask her not to bother me. She said that, for many years, she was afraid of me at such times. Now, friends, please take this in the right sense. She was afraid I might be tired or a little bit cross, and would not want to talk; but, dear friends, that time has all gone by. There is not a moment in all my existence, either day or night, when it does not give me a thrill of pleasure to hear her voice and feel the touch of her hand or catch a glimpse of her dear figure somewhere in the dim distance. And you too, dear brother and sister, may feel this same joy, this precious gift from God, to fill your soul to the brim with happiness because of the companion he in his loving kindness has given you, even though you be between sixty and seventy years of age. This relation between you two may grow so strong that no power on earth can mar it. I am not sure that even death itself will end it. I have searched my Bible carefully, and I know pretty well what it says about it.

Now please pardon me if I go a little further. When I was in my teens I got hold of a book by Fowler & Wells. In it there were extracts from poems. It was about the time I first met Mrs. Root, when she was in the bloom of girlhood. It read something like this:

Then come in the evening or come in the morning;
Come when you're looked for or come without warning.

Then follows a line I can not for the life of me recall; but the last line of the verse was:

But the oftener you come, the more I'll adore you.

My boyish fancy suggested at that time (I was eighteen or nineteen) that I could live with Mrs. Root all my life, and feel just that way; yes, and such might have been the case, I presume had Christ Jesus at that time been my leader. May God forgive me for straying as I did. Perhaps this love between us two might not have been so perfect had it not been for the thorns and brambles (of my own making) through which we two have traveled for a *few* of the forty and more years we have lived together. But, may God be praised, I can now say, as we have it in our little verse, Mrs. Root may

Come in the evening or come in the morning;
Come when she's looked for, or come without warning.

I wonder if some of our readers can supply the missing line of that old stanza. Yes, the *oftener* she comes, the "more I'll adore her." Of course, that word "adore" does not quite fit at our stage of life. We both *adore* the Lord Jesus Christ; but next to him comes (to me) the dear wife.

Of course, it is necessary to be self-sacrificing and to give up a good deal to preserve this relation. Mrs. Root is an exceedingly sweet tempered woman; but from the knowledge and experience I have of her makeup I know I could stir her up to fierce warfare in less than an hour. But perhaps I had better hold on a bit; for just now if I should go back to my old selfish ways suddenly, she would conclude at once that I had gone crazy; and instead of letting her temper come up, she would pity me and call in the friends and relatives.

Let me now give you an illustration of something recent in the way of self-sacrifice and giving way to the dear partner of your life.

While traveling in the cars in Central Michigan a big storm came up. The water came down like "suds," and the fields were covered with puddles of water. Every thing was swimming. Mrs. Root suggested that I unpack her stuff and get her rubbers, for when we should reach Toledo it would be sure to be sloppy. Said I:

"Why, my dear wife, we are several hours and something like 200 miles from Toledo. Thunder-storms in the latter part of June are generally more or less local. The fact that every thing is swimming here is no evidence *at all* that it will not be dry in Toledo, and even dusty."

But she was so sure that it must be sloppy everywhere, I gave way and got her rubbers. I told her, however, that after we had gone ten miles we might find dusty roads, and then forgot about it. In half an hour we came into Lansing, where the clouds had disappeared. The sun was shining, and she smilingly called my attention to the fact that the roads were *actually dusty*. I had not studied the working of the Weather Bureau, and displayed their signals all these years, for nothing. Mrs. Root was reasoning somewhat like the almanac-makers who still insist there are men living who can tell what the weather will be *all over the United States* a year ahead.

Now, I give this illustration to show that, had I insisted on my view of things, which was right, a little unpleasantness might have arisen. Next morning, in Toledo, before leaving our sleeping-room she wanted to slick things up and put them to rights; but I said that we would miss the eight-o'clock car if she waited to do that. But she replied it would take only a minute to make things look tidy in the pretty little room they had given us. I replied, "Why, my dear wife, who ever thinks of slicking up a sleeping-room in a *hotel?* They have women employed for that very purpose, and the bill we pay covers the cost of setting things to rights. We shall miss our car, and then have to wait another hour."

I think she said that, if nobody else appreciated it, the chambermaid would when she came to make up the bed, etc. But I let her have her own way about leaving things neat and tidy wherever she went, even in a hotel in a great city.

When we arrived at the suburban depot the car had just gone, so we had to wait an hour. This second car did not make connection at Norwalk, so we had to take another wait of *an hour and a half*, just because she would have her own way in slicking things up a little in our sleeping-room. I am not finding fault here with her in print, more than I did to her face, because, in finding this great happiness I have told you about, I have discovered that one of the first conditions is not to find fault with and criticise your companion's conduct. After we had been forced to wait twice for our car in consequence of that delay I did not once remind her of it, and did not say, "I told you so." But I gained something worth a *thousand times* more.*

Now, do not rush to the conclusion that Mrs. Root is "bossing" me. When she found out there at the cabin in the woods that I was devoting my life to her happiness and comfort, she set about seeing what *she* could do in the way of self-sacrifice and giving way to me. It has seemed as if God in his great providence led us two off alone into the woods to discover and unfold the great unexplored region of happiness that he has in store for every married couple after they have brought up a family of children. Dear reader, contrast such a life with one of jangling, discord, and fault-finding. Contrast it with the conditions outlined in the following:

A gray-headed old farmer had the good fortune to get for a second wife a middle-aged schoolteacher, a Christian woman of culture and amiable disposition. This man came to our store to get some tools he needed for farming. His wife came along, and was very much pleased with some of the kitchen utensils on our five and ten cent counter. This was years ago. Some of them were sadly needed in that ill-furnished kitchen in that farm home. She pleasantly asked for a little change to get these useful household appliances. Shall I tell you what his reply was to her request for a little money? "No, I haven't a cent for any such —— —— traps. Come on home."

She had given her comparatively sweet pure life into his care and keeping; and the above foul language (for there were foul oaths where I have put the blanks) was her reward for her self-sacrifice; and that was his return to the great God above who permitted him to have this comparatively beautiful young wife for his helpmeet. I presume she was tired of teaching, and wanted a *home*, a place to rest, and his proposal was the only place that seemed to offer her a home of her own.

Another point: Most married couples, if they have been prudent and frugal, have laid up some property by the time the children are married and gone away. They have the means to take life easy, but discover to their sadness that *money* does not make them happy. If they are not very careful it will be just the contrary. When their lives are not so busy they have time to find fault, and "Satan finds some mischief still for idle hands," you know. A man of considerable means was recently riding by my side. We passed a little unpretentious country home. The house was not even painted. There were no shade-trees, and almost no garden. He stopped his horse and pointed at the house.

"Mr. Root, the happiest days of my life were passed in that little house. When we were first married we lived there for quite a spell until a better place was ready. We both worked hard, and planned together; and it is the honest truth, I have never seen more happiness, contentment, and real enjoyment at any time before or since than in that little humble home."

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* Some may urge that it takes too much time to go through life doing work that other people are hired to do. But, after all, what are we living for? "What shall it profit a man?" etc. Possibly there are readers of GLEANINGS whose work is to look after sleeping-rooms when guests have departed. Suppose all of us, men and women, should follow Mrs. Root's example, and endeavor to make the work easy and pleasant, even for the hired girl whose task it is to make beds, and sweep up and restore to order where every thing has been left in disorder. Let's see. Who was it that said, "And whosoever will be chief among you, let him be your servant"?

To be exact, it is not certain that this slicking-up was what caused us to lose the car. We were delayed at the breakfast-table and by other causes. The point I wish to make is that, if I had been disposed to scold, grumble, and find fault, I might have kept throwing it up to her, just as I used to to do sometimes, before I was redeemed out of the darkness and brought into the light.

Dear friends, there are evidences all round about us that show we do not need money to make us happy. A little story that I saw in a Sunday-school paper may help us right here:

Two farmers, whose lots joined each other, had quarreled for years over the location of a line fence. There had been lawsuit after lawsuit until one of the two died. I do not know but one of the lawyers employed took his client's farm for pay — at least that lawyer came into possession of the farm in some way or other. Now, this lawyer had learned something by experience. He came over to see his farmer neighbor to talk about the line fence. The neighbors who lived around there, and who were looking on, were laughing in their sleeves. Would this old gray-headed man who had lawed so much about that line fence undertake to fight an expert lawyer? But he seemed to be like the game cocks we read about — no matter what the odds, he was ready to fight, and he informed his lawyer neighbor that he would fight for his rights to the bitter end.

The lawyer finally inquired, "Well, neighbor B., what *are* your rights? Where do you think the fence ought to be?"

"Why, sir, it ought to be over on your side two feet further at the south end and three feet further at the north."

"Well, now, my friend, I believe in having peace and good will between neighbors. You may not only have the fence over where you choose, but you may move it two feet further yet at each end. I shall have all the land I need as long as I live, and it is worth something to have things satisfactory with those who live next to me."

Poor old farmer B.! He was braced up for a fight, but he was not prepared for any such spirit as this. It took the wind all out of his sails. He could not believe that this man, and he a lawyer, should undertake to settle disputes in that way. It was not very long before he "flopped," as they say in politics; and he told the new neighbor he didn't propose to be outdone in generosity, and even suggested that they leave the fence where it then stood. Thus ended a lawsuit of years' standing. Now, it seems almost preposterous to recommend that we old people recognize practicing similar tactics with our good wives. Let me see. What was it that Jesus said in regard to this very matter? "Do good and lend, hoping for nothing again." And then further on:

> Give, and it shall be given unto you; good measure, pressed down and shaken together and running over, shall men give into your bosom. For with the same measure that ye mete withal, it shall be measured to you again.

Why, bless your hearts, dear friends, no *woman* will be outdone in self-sacrifice and unselfishness. Try it and see. But make the Bible your daily counselor and guide. You will never succeed unless you do.

This thing opens up still further. If such an attitude will move the wife, why not the son and daughter? But the dear wife should come first so she can give us motherly help; and, by the way, my honest opinion is that the mother's affection, or you may say intuition, is safer to follow, by tremendous odds, than that of the father, generally speaking, and thus another home will be made perfect through God's love.

Now, dear friends, in all that I have written I have had in mind that sometimes, but not often, it is the husband who is the suffering one, and the wife who is the domineering element. There is a slang expression for such a state of affairs that I do not wish to repeat here. There is always more or less fault on both sides; but as the husband is the stronger, and the one in the habit of taking the lead, I have appealed to him.

And this suggests just a word more to husbands. I came pretty near saying, when provoked, "That is a fair sample of a *woman's* reasoning."* A woman does not reason exactly as a man does. Her life is in a different line — that is, most women's lives are. We have reason to know, however, in this day and age, that there *are* women who are equal to men in almost every line you can suggest, not only in art and science, but in the trades and industries, on the farm, in the field, or in the workshop. God has given us a diversity of talents. Some men have an aptness and a love for cooking, and perhaps for housework — cleaning house, etc., and there are women, scores of them, who are skilled in the work usually accorded to man. I presume the largest happiness to the human race consists in letting both men and women have the greatest freedom in choosing their work. In fact, everybody does his work better by having greater freedom. Now, my friend, if this wife of yours had greater freedom than she ever had before, no doubt she would be a happier woman, and be of more benefit to the world and of more benefit to you. In this recent discovery of mine which I have been trying to tell you about, I have seen Mrs. Root develop wonderful talent in lines she had never thought of before. It has been my delight to tell her to do just what she pleased, and I would help her; and, oh what fun it has been to see *her* plans succeed when we two were working together! When we started in life our parents were all poor; but I was permitted to attend school, and very good schools too, for a much longer period than she was. Another thing, I learned very easily, while she, when young, was comparatively slow in getting hold of some things. For many years of our married life I took the lead, a good deal because of my supposed superior education; but after she had followed our five children, not only through their schooling here in Medina, but after they went away to college, I began to be slightly surprised to find she was, in many things, getting ahead of me. She has all her life been a great reader; but she is more careful than the rest of us in choosing her books and magazines. She has been completing and rounding out her education by means of the excellent periodicals that this age affords. God knows I am not mentioning these things to boast of the wife he has given me, but that others may take courage and grasp hold of the opportunities that still lie before them even though they may be sixty or seventy years old.

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* I once heard a husband say to his wife, who had asked what he considered a foolish question, something like this: "Nobody of good common sense would have asked such a question as that." No doubt women sometimes ask foolish questions—at least they seem so to the man who has not informed his wife or kept her posted in regard to what is going on in the world, especially in the line of men's business. The following clipping from the Cleveland *Leader* graphically describes a good many husbands:

The wisest man on this here earth
Is paw;
He knows a thousand times as much
As maw.
The neighbors don't know near as much
As he—
He's full of knowledge as he
Can be.
He knows just how the housework should
Be done,
And how this glorious country should
Be run.
He knows exactly how maw ought
To dress—
He's certain he could do it for
Much less.

With a fervent prayer that this Home paper may be the means of discouraging, at least to some extent, this growing evil of divorce, especially after several children have been brought up, I remain your old friend

A. I. Root.

LOOK AFTER THE YOUNG GIRLS AS WELL AS THE YOUNG BOYS.

Hand in hand with the liquor-traffic there is another traffic that I hardly dare mention on these pages. Of late it has been developing in a new line. Girls are advertised for to learn telegraphy or typewriting, etc., and many respond who have no education to fill either position. The advertisers do not care any thing about this. The girl is given an easy place and good pay; and unless she has a brother or father or somebody else to look after her, she is led, if it is a possible thing, in the path that leads to ruin. A certain set of fiends in human form at the St. Louis exposition have agents out all over our land. No girl is safe from these snares after she is away from home and friends. Look after the girls, especially when they contemplate leaving the parental home. The Young Women's Christian Temperance Union has a society in the Union Station, St. Louis, to look after girls who come unattended; but I am informed that the crowds are now so great that this organization can not look after the passengers who come in, from one train out of ten. Will the fathers and mothers and all Christian people help in rescuing our girls from the grasp of this Satanic crowd?

THE RIGHTS OF OTHERS.

The following, from the *Modern Farmer and Busy Bee* for June, is so ably presented that we copy it entire. To tell the truth, I do not know of another man living who can present great truths in this line with more directness and pungency than our good friend Emerson T. Abbott.

> Did you ever stop to think how few people there are who have an unselfish regard for the rights of others? We talk a great deal about human rights and human liberty, and yet, after all, most people, especially the male portion of humanity, think more of their own selfish enjoyments than they do of the rights of others. To illustrate, every person surely has a right to pure air to breathe, and yet nine-tenths of the men have no hesitation in robbing you of that privilege. They will light a cigar or a pipe, or, worse still, a cigarette, and go along the street poisoning the air with tobacco smoke with perfect indifference, come into your home or office and puff it into your face in the same way, and the moment you object they begin to talk about "personal liberty," etc. They will do this sometimes even in the presence of ladies, without so much as even saying, "I beg your pardon." It is true all of them will not do it, but many of them are so wedded to this habit of self-indulgence that even the presence of ladies has no influence on them. "But," says one, "tobacco smoke is not poisonous, and I do not see any thing about it to make it disagreeable to any one." Just so; there is where the selfishness comes in. You like it; and if the other fellow does not, that is his business. This is selfishness in the extreme! It is poisonous to me, and it was to you until your system became saturated with it, and rendered you unconscious of its poisonous influences. If it were not, what right have you to make my life a burden to me in order to add to your own selfish personal enjoyment, even though we should admit for the moment that there is no probability of any injury to you? *You* may like to breathe air filled with second-hand tobacco smoke, but there are people who want theirs free from all poisonous influences. They must breathe air of some kind, and why should you insist on robbing them of their God-given right to breathe pure air? About the only place a man has a right to do a thing of this kind is on his own premises, where no one else is likely to come, and even in his own home he should not forget the rights of the other members of the family. Please note that this is not a dissertation on morals but a very meager elucidation of a principle which is very broad and far-reaching in its application, and one worthy the careful attention of every man or woman. Of course, we come in contact with such things more in the city than in the country, but we are inclined to think that the country has its share of this kind of selfishness.

DUFFY'S MALT WHISKY THAT HELPED A MAN TO BE 103 YEARS OLD; SEE PAGE 610, JUNE 15.

Friend Root:—After reading your sermon of June 15, thought this might interest you. T. B. Terry.
Hudson, O., June 22.

With the above, friend Terry sends two leaves taken from a periodical called *Physical Culture*. From these leaves I make the following abbreviated extracts:

> Here is a sample of the usual methods of patent-medicine venders and others who are desirous of separating the public from their hard-earned dollars. Health and strength only $1.00 a bottle! It is to be hoped that the time is not far distant when the public will realize that health does not come in bottles, powders, or pills.—Bernard McFadden.

In the daily papers throughout the country there have frequently appeared testimonials of the wonderful effect that has followed the use of "Duffy Malt Whisky." Centenarians and others of advanced age have apparently contributed commendatory testimonials, glowing with praise of this dope, which the company is selling at $1 00 a bottle.

The perusal of any of these testimonials would naturally cause almost any intelligent reader to believe that there is some merit in this alcohol poison. When centenarians can daily use a fiery liquor of this character, and be apparently improved in health, why, people naturally infer that almost any individual would be more vigorous if this whisky were used regularly.

On many occasions. after reading the laudatory testimonials sent forth by this whisky company in their advertisements in the daily newspapers, I have wondered how they happened to secure the commendation of these old people. I did not for a moment believe that they were genuine. I felt satisfied that there was some influence used. I do not believe that any individual was ever made stronger or healthier by the use of whisky.

I have taken the pains to investigate one of these lying testimonials which has been sent broadcast through the daily press by the Duffy Malt Whisky Company. Mr. Wolf Weisman, of Hoboken, N. J., now 103 years of age, is credited with having written and sent his testimonial. Mr. Weisman does not speak the English language, and you can well understand his amazement when the testimonial used by the Duffy Malt Whisky Company had been interpreted to him. He had never written it, had never seen it, had never even heard of it. He denied in the most emphatic terms that he had been drinking Duffy's malt whisky for several years, and stated that he had never heard of that brand of whisky until about the first of October. About that time, he states, a case of Duffy's malt whisky was delivered to him without explanation of any kind, and without charges. He did not know where it came from, and knew no reason why it should have been sent to him. Neither at that time, nor any time since, has any one asked him his opinion in reference to its merits, nor has he expressed any opinion in relation to it.

This is a sample of the fake methods that are used by many so-called honorable concerns in the business world to-day. They indicate a condition that is indeed to be deplored; and when the names and reputation of well-known men can be taken and used for a whisky advertisement, and can be bandied here and there at the will of these greedy whisky-manufacturers, it is time that some laws were made that will bring to justice the responsible offenders.

I extract the following from the advertisement of Duffy's malt whisky, this advertisement being copied in *Physical Culture*.

Wolf Weisman, of Hoboken, N. J., now in his 104th year, and possessed of all his faculties, says, "Duffy's pure malt whisky keeps my mind clear, and body strong and well. It has prolonged my life many years." Mr. Weisman is just as keen and bright as he was 25 years ago.

I have used Duffy's Pure Malt Whisky for years. It tones up the system, enriches the blood, stimulates the circulation, takes away that tired feeling, and keeps my mind clear and body strong and well. It has undoubtedly prolonged my life many years. I am very thankful for having heard of Duffy's Pure Malt Whisky, and would not be without it.
WOLF WEISMAN, No. 110 Adams St.

In our issue for June 15 I said Duffy's advertisement was still in every issue of the Cleveland *Leader;* but I am glad to say I do not find it now in that journal. Very likely they have been advised of the way the Duffy people do business. I am not a lawyer; but if it is true that there are no laws in our land to punish this sort of work, some such law should be made; and this practice of wholesale lying and swindling in connection with whisky advertising should be brought to an end. It is a disgrace to our nation and to the present age. In this connection permit me to say that, in my article of June 15, I reflected on the advertising pages of the Chicago *Advance*. I have examined carefully every issue during the past month, and the objectionable advertisements have all or very nearly all disappeared, so we can rejoice again.

HEALTH NOTES
BY A. I. ROOT

NATURE PERFORMS THE CURE, AND THE DRUGS AND MEDICINES OFTEN GET THE CREDIT FOR IT.

I believe all the drugs in the market and the patented medicines are humbugs. I can prove it in a measure. I have tried nearly all that claim they will cure eczema. I have spent over $300 to get eczema out of my limbs, and all failed. I believe all the smart men *know* that these diseases and others will, as a rule, wear off in time, so they give colored water perfumed with licorice, etc., to blind the patients, and make their living at the expense of the foolish people who are ready to throw away their money.

Shanesville, O. H. J. BLICKENSDERFER.

Friend B., I am afraid your opening sentence is a little too severe; but I do believe a great portion of these things get the credit when nature does the work, and the medicine has nothing whatever to do with it. Your point comes in excellently concerning remedies for stings. I think most of you will agree with me that the pain from the sting usually ceases quite suddenly, sooner or later, after receiving the sting. This being true, when somebody runs for his remedy, and gets it on the spot just about as the pain is letting up, he rushes to the conclusion that the treatment causes it to cease, when it has no effect whatever. I have given these things a most careful test almost ever since I was interested in bees, and I have never yet had any reason to change my instruction in regard to bee-stings. Get every bit of the sting out of the wound as soon as possible, then go about your work, and try not to think of the sting. If you sit down and nurse it and fuss with it, the pain will last longer than if you let it alone and "get busy" so as to keep your mind away from the matter entirely and on something else. And I think the same rule will apply in a like manner for a great many aches and pains. If you get a sliver in your finger, of course you must dig it out first; then apply your "Christian science," or whatever you may choose to call it.

This Lightning Lice Killing Machine kills all lice and mites. No injury to birds or feathers. Handles any fowl, smallest chick to largest gobbler. Made in three sizes Pays for itself first season. Also *Lightning Lice Killing Powder, Poultry Bits, Lice Murder, etc.* We secure special low express rates. Catalog mailed free. Write ror it.
CHARLES SCHILD, Ionia, Mich.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

Last winter was a severe test on Bees,

But Quirin's Famous Leather-colored Italians

wintered on their summer stands, within a few miles of bleak Lake Erie. . . . Queens now Ready to go by Return Mail.

Our new circular now ready to mail.

ADDRESS ALL ORDERS TO

Prices after July 1.

	1	6	12
Select	$ 75	$ 4 00	$ 7 00
Tested	1 00	5 00	9 00
Select tested	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight five-band breeders	5 00		
Palestine queens	1 50	8 00	15 00
Two-comb nuclei, no queen	2 25	12 00	22 00
Full colony on eight frames	5 00	25 00	
Four fr's brood, & 4 fr's f'd'n	4 00	22 00	

Special low prices on Queens and Nuclei in 50 and 100 Lots. Nuclei on L. or Danzenbaker frames.

Quirin-the-Queen-Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY . . . . . .

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200

Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1.50; select tested $2.50; breeders $4.00 to $7.00.
Illustrated price list free for the asking.

W. O. VICTOR,
Queen Specialist. Wharton, Tex

BEES FOR SALE

OVERSTOCKED.

¶ We have more bees than we can operate, and offer them as follows: Full colony with good young queens at **$5.50** each; twenty or more, **$5 00** each; three-frame nuclei with queens, **$3 00** each; twenty or more, **$2.50** each. Bees are all of the best improved races. The full colonies will be furnished in single story ten-frame Dovetailed hives, and have eight frames of brood, bees, and honey, and two frames of foundation.

CAR LOTS.

¶ We will furnish bees in car lots as above at **$4.50** per colony.

LOCATIONS.

¶ Any one wishing to locate in a fine bee country can find suitable locations near here, and we can supply you bees at satisfactory rates. Circulars and full information gladly given. Address

THE HYDE BEE CO.,
FLORESVILLE, TEXAS.

CARNIOLANS AND ITALIANS.

Untested Queen 75c.; Six for $3.90; Twelve for $6.00. Tested $1.25. Best Breeder $2.50. Imported $4.00.

Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

F. A. LOCKHART & CO.,
Lake George, - New York.

Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years. We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness*.

Italians.

Gentle, prolific, swarm very little, hustlers to work, and a red-clover strain.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

Doolittle Says:

"Be very choice of this Breeder; if ever a Queen was worth $100, she is." Then we have Breeders from our strain that gave the big yields in '94, and which some of the largest bee-keepers in Cuba say can't be beat. They swarm but little and are **honey-getters.** We are breeding for **honey-gatherers** more than color. We cull our cells and queens, and **warrant** queens purely mated. Prices: Select untested, $1.00; select, $1.25, tested, $1.50; select, $2.00; breeders, $3.00, $4.00, and $5.00. Circulars free.

J. B. CASE, Port Orange, Florida.

Queens by Return Mail

We are now breeding from three distinct strains, viz., Imported or leather color, Root's long-tongued or red clover strain, and our old strain of white-banded yellow Italians, or albinos. :: :: ::

JULY PRICES:

Untested, each	$ .75;	half doz. $4.25;	doz. $ 8.00
Warranted, each	.90;	half doz. 5.00;	doz. 9.00
Tested, each			1.25
Select tested, each			1.50

We have also a full line of bee-keepers' supplies including The A. I. Root Company's goods . . .

Root's Sections and Weed's Foundation a Specialty

Send for our 32-page illustrated catalog. . . . .

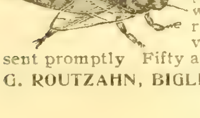
W. W. Cary & Son, Lyonsville, Mass.

Leather Colored Italians For Sale!

Strain took first premium Minnesota State Fair, 1901 and 1902 Ready May 1st. Eight or nine frame Langstroth hives, $5.00; ten frame, $6.00 each, f. o. b. Milaca.

W. R. ANSELL, Mille Lacs Apiaries,
MILACA, MINN.

Red Clover and Three and Five Banded Queens.



Untested, 65 cts.; $7 per doz. Fine tested queens, $1.00 each. Four frame nuclei, fine queen, in painted hive $3.25. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly Fifty and one hundred specia prices.

G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENNA.

MOORE'S STRAIN OF ITALIANS

AS RED-CLOVER WORKERS.

L. C. Medkiff, Salem, N. J., says: "I bought an untested queen of you last year, and her bees have filled three comb-honey supers, and did not swarm, while thirteen out of the fifteen other colonies did not get more than half that amount

I have queens from six different breeders, and I class yours 100 per cent above them all. Your bees worked very strong on the first crop of red clover. I know they were yours, because I floured them with a dredge-box and watched the hive. They also worked strong on the second crop of red clover and lima-bean blossoms."

Untested queens, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5.00; dozen, $9.00. Safe arrival and satisfaction guaranteed.

Send for descriptive circular showing why my queen-trade has grown so fast. I am now filling orders by return mail and shall probably be able to do so till the close of the season.

J. P. MOORE, Morgan, Pandleton Co., Key.

The Best Stock!

Twenty years' experience in rearing Italian queen bees, and producing honey on a large scale has taught me the value of the best stock, and what the best queens reared from that best stock mean to the honey producer. I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then by crossing these different strains and selecting the best and breeding from them I have secured a strain of stock that is the equal of any for honey-gathering.

> Delanson, New York, July 10, 1902.
>
> MR. ROBEY Dear Sir: The queens that I bought of you two years ago were the finest lot, and the best honey-gatherers of any queens I ever had, and I have had over 1000 queens from the principal queen-breeders of the United States. E. W. ALEXANDER.

Warranted queens in any quantity, 60c. each. Safe delivery and satisfaction guaranteed or money refunded.

L. H. ROBEY Worthington, W. Va.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines. and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Second-hand Barnes footpower saw.
E. M. CROSMAN, Alexander, N. Y.

WANTED.—Second-hand Barnes foot-power saw.
THE A. I. ROOT CO., Medina, O.

WANTED.—Chunk comb honey during season, any quantity; cash paid. E. A. HEARN, Salisbury, Md.

WANTED.—Bee-keepers to read our ad. of bees for sale in this issue.
THE HYDE BEE CO., Floresville, Tex.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange Petaluma Incubator, 324 eggs, for foundation-mill.
H. R. BUFFHAM, Newman, Cal.

WANTED.—A quantity of Egyptian onion-sets and roots. Write quantity and price you will sell for.
BEEBEE & RATHBORN, Oneida Castle, N. Y.

WANTED.—50 or 100 young Carniolan or Italian queens; will pay 25 cents each. Write before sending. L. F. WAHL, R. F. D. 12, Groton, N. Y.

WANTED.—Your experience in marketing honey, aside from trade centers. For publication in the August number of the Rural Bee-keeper. Address
W. H. PUTNAM, River Falls, Wis.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange catalog describing the best hive in existence, a double-walled hive for only 20c extra, for your name and address.
T. K. MASSIE, Tophet, W. Va.

WANTED.—To exchange 60-lb. cans for honey, cash, or offers. No. 1 at 40 cts. per case; No. 2 at 30 cts.
G. L. BUCHANAN,
Hollidays Cove, W. Va.

WANTED.—To exchange second-hand hives, and Dorset sheep, for cane-mill and syrup-pan or evaporator. L. F WEAVER, Shadeland, Ind.

WANTED.—To exchange an Odell-Young type-writer, full nickel-plate, double case; machine cost $20.00 new, and is in perfect order, for a Langdon miter-box, foundation-mill, or any thing useful to a bee-keeper or woodworker.
FRANK LACEY, 81 North St., Danbury, Conn.

Help Wanted.

WANTED.—A practical all-around kind of man for bee work in summer, and greenhouse and shop work in winter. A job by the year for the right man. Married, and middle-aged preferred. Drinkers and smokers not wanted. Reference required. Write me. R. C. AIKIN, Loveland, Colo.

WANTED.—An experienced young man to take charge of my apiary, on shares.
J. W. JACKSON, Opelousas, La

Addresses Wanted.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—50,000 sections, $4.50 per M.
C. A. GRAVES, Shelby, Ohio.

FOR SALE.—Honey-extractor ; price $4.00.
FRED W. BUTTERY, Norwalk, Conn.

FOR SALE.—An almost new tin 4-inch Bingham smoke-engine for $1.25.
N. A. BARNES, El Dorado, Kan.

FOR SALE.—A few hundred cases of 60-lb. honey-cans, good as new, at about half their real value.
J. A. BUCHANAN & SONS, Hollidays Cove, W. Va.

FOR SALE.—My apiary of 90 colonies, in good condition, straight combs, good location; a liberal discount on fixtures and supplies. B. F. HASTINGS,
Perry Park, Col.

FOR SALE.—Five-gallon square tin can used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—57 New AE5 8 fr. Root's Dovetailed hives in flat for $55.00, or 10 for $10; also 10 new 2S 8-frame supers in flat for $3.50.
R. S. CHAPIN, Marion, Mich.

FOR SALE.—Italian bees with red-clover queen ; 3-frame nucleus on Danz. frame, so you can make a start with Danz. hives, $3.50. Standard frames the same. Orders shipped immediately.
F. H. FARMER, 182 Friend St., Boston, Mass.

FOR SALE.—325 colonies of best strain of Italians in United States, in good location in Southwest Texas. Location, business, and outfit for sale at a bargain. Address for particulars C. WORTH,
Karnes City, Tex.

FOR SALE.—Slightly damaged hives at a very low price; first-class in every way, Lewis make, both eight and ten frame. Can ship at once.
LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

FOR SALE.—500 colonies of bees in Root's 10-frame hives in fine condition. Will sell in lots of 50 or upward. Also fine 100-acre farm at a bargain. Write or call quick for full particulars.
UDO TOEPPERWEIN, San Antonio, Tex.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT,
Shenandoah, Page Co., Iowa.

FOR SALE.—Apiarian outfit of small house and acre of land with 200 colonies Italians in Dovetailed hives, in best white-clover part of Minnesota (also basswood and goldenrod) ; to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot. X Y Z, GLEANINGS.

FOR SALE.—1000 supers of our own make for 4¼x4¼ x1⅞ sections for Langstroth 8-frame hives, empty, at 13 cts. each. With section-holders and separators added at 30 cts. each. Write early, for they will not last long. Write us for bee supplies.
ROY A. WILSON, Kearney, Neb.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

My Stock of Supplies

is fresh from the factory, and fully up-to-date in every detail. My sections are not dried out and they do not break in bending.

What They Say.

Peru, Ind., May 23, 1904.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—Each of the many orders you have filled for me has been accompanied with a pleasant surprise in the form of promptness and precision. In some cases it has been worth many dollars to me to have goods shipped on next train. I think promptness is your strong hold. I would put it: *Pouder, Promptness, Precision, and Perfection* of goods. I desire to thank you for the many courtesies you have shown me in our business relations.

Yours truly,

GEORGE DEMUTH.

⁂

Medina, Ohio

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—It seems to us, bee-keepers ought to be very glad to have such a dealer as yourself to depend upon for supplies, and we congratulate you.

Yours truly.

THE A. I. ROOT CO., *per* A. L. BOYDEN, Sec'y.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

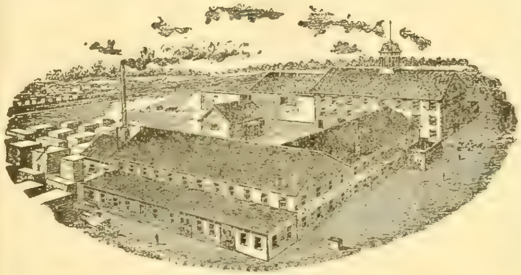
WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

BEE - SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

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Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

I. J. Stringham, New York,

Keeps in stock a complete line of

Apiarian supplies

Colonies of Italian bees in new hive	$8.50		
Three-frame nucleus colonies with Italian queen	3.75		
Tested Italian queen	1.25	Untested queen	75
Silk-faced veil, best made	.40	Catalog	FREE

Apiaries--Glen Cove, L. I. **Salesroom--105 Park Place, N. Y.**

NOT IN THE TRUST.

The oldest bee-supply house in the East. Sells the BEST GOODS at former prices.

Send for Catalog.

J. H. M. COOK,
70 Cortlandt St., New York City.
Tested queens now ready by return mai

Pacific Coast Buyers

are directed to the announcement that
SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California,

carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundation, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added. This saves buyers $1 50 per 100 pounds in freight or 36c on each hive.

BEE-KEEPERS, let me sell you the best goods made. You will be pleased on receipt of them, and save money by ordering from me. My stock is all new and complete. I handle the G. B. Lewis Co. and The A. I. Root Co. goods. Send for catalog. It is free.
W. J. McCARTY, Emmetsburg, Iowa.

BEE-KEEPERS' SUPPLIES FOR KANSAS

Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*
A. W. SWAN & CO. Centralia, Kan.

Virginia Queens

Italian queens secured by a cross, and years of careful selection. From red-clover queens and Superior stock obtained from W. Z. Hutchinson. I can furnish large vigorous untested queens 75 cts.; after June 15th, 60 cts.; tested queens, $1.00; after June 15th, 75 cents.
Write for discount on large orders.

CHAS. KOEPPEN,
Fredericksburg, - Virginia.

More Room

We now occupy the greatest floor space, and carry the largest stock of goods, that we ever did before. Our specialty is

Wholesale and Retail

Lewis' Goods

AT

Factory Prices.

Dovetailed hives Wisconsin hives, Champion Chaff hives, Improved Langstroth Simplicity hives, and our new hive which we call the Acme hive. Thousands of pounds of comb foundation; millions of sections in about 30 different sizes and styles, and everything the bee-keeper needs.

Do not fail to find out all about the

ACME HIVE.

Hundreds of them already sold, this year. Catalogs and plenty of information free. Let us estimate on your order.

C. M. Scott & Co.,
1004 E Washington St.,
Indianapolis, = Ind.

Do You Need Queens?

If so, you want none but the best. **Prolific Queens?**—they mean large colonies. **Good Workers?** — they mean full supers. We can fill your orders for such queens by return mail, from our choice strain of three band Italians, which are not excelled as honey-gatherers. : : :

Choice tested queens, $1.00 each; untested 50c; per dozen, $6.00. *Send for circular.*

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. LAWS, Beeville, Texas.

MY GOLDEN BREEDER

gave me 400 pounds of honey last year. Her daughters are 75c each; $8 00 per dozen.

George W. Cook. - Spring Hill. Kans.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published ***The* American Bee-keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

***The* W. T. Falconer Mfg. Company,**
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

SPECIAL NOTICE
Special Notices
By Our Business Manager

Our readers are requested to notice the change of street address of our San Antonio Branch Office This has lately been moved to 1322 South Flores St., where larger and more convenient rooms have been secured.

The attention of our readers is called to the advertisement of The Frisbee Honey Co., offering a select list of books at a very low rate. They have submitted titles of a number of these to us, and we recommend that our book-buying friends get a list of the books they offer.

RUBBER STAMPS.

We have installed in our printing department a new rubber-stamp vulcanizer so that we are better equipped for turning out stamps than before. We are also prepared to furnish labels and special printing promptly. Send for job-printing and rubber-stamp catalog.

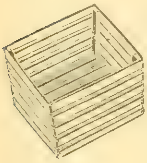
BEESWAX PLENTIFUL.

Beeswax seems more plentiful this season, and we are paying now 26 cents cash, 28 cents in trade, for average wax delivered here or at our branch offices. Our trade in foundation has not been as heavy the past few months as it was a year ago, owing to winter losses, and we have, as a consequence, a more plentiful supply on hand.

ORDERS FILLED PROMPTLY.

By July 1st we had all carload orders filled, and had begun to accumulate stock. While we have delayed small orders only a few days, with a few exceptions, all through the season, we are now shipping by first train. Our branches and agencies are also well supplied with goods. Those wanting quick service can get it. If in need of any thing, send on your orders.

BUSHEL BOXES.



The season is at hand when bushel boxes are needed for handling potatoes and other farm crops The accompanying cut shows our all slatted box which has been used for years, and is a most popular box. It is 16 inches long by 13½ wide and 12½ deep, inside measure, holding a heaped bushel when level full. One box may be nested inside of two when empty, so they can be handled in bunches of three. As packed, there are 14 in a bunch — 2 nailed up and the other 12 in flat, with nails included. We usually make them with oak corner-posts ; and, so made, the price is $1.90 per crate of 14. We have quite a stock on hand, packed ready for shipment, of all basswood slats, no oak corners. We offer these, to close them out, at $1.75 per crate; ten-crate lots, 5 per cent discount.

Special Notices by A. I. Root.

ADVANCE IN PRICE OF JAPANESE BUCKWHEAT.

Instead of prices in our seed catalog, Japanese buckwheat will be, for the rest of the season, $1 50 per bushel. In fact, we can hardly get it so as to furnish it at this price. It seems strange that the bee-keepers of our land can not grow enough Japanese buckwheat so as to have it furnished for less than the above price. This is now the second season there has been a scarcity and the price away up.

DIETRICH'S FIFTEEN-ACRE FARM; A GOVERNMENT BULLETIN.

I am rejoiced to see that Uncle Samuel has given us a bulletin entitled "A Model Farm." It is a reprint from the "Yearbook of the Department of Agriculture" for 1903. For obvious reasons, Mr. Dietrich's name and locality are omitted ; but it is a good description of his work, with six fine photo-engravings. I should like to give the whole bulletin in GLEANINGS; but inasmuch as any one interested can have it free by sending to the Department of Agriculture, Washington, D. C., I make only some brief extracts from the conclusion

> We have given the account of a pioneer farmer, starting in with no experience, but going to work in a methodical manner to learn what he could from the experience of others, making a careful study of surrounding conditions, and adjusting himself to those conditions. This farmer, by applying scientific principles and business methods, has blazed a path into a region of great possibilities. The most important lesson to be learned from his achievements is that, by applying such methods, it is possible to 'cause land to yield twice or three times as much as the present average from what are considered good methods.
>
> Can this experience be duplicated on other farms? The answer to this question depends on the soil, and the man who has the management of it. It can not be done by the man who is not a student. Few men, indeed, could develop unaided a system such as that described ; but there are many who can do it now that the methods by which it has been accomplished are common knowledge.
>
> The most important single feature of this farm, aside from the remarkably systematic way in which it is conducted, is the manner of handling the manure. The fact that the stock are all stabled the year round makes it possible to save all the manure, both liquid and solid, and to apply it to the land. Again, the fact that it is applied daily, as produced, insures that any leaching by rains shall carry the leached materials into the soil, where it is wanted. How much plant food is lost from fermentation after the manure is spread on the fields is not known. But the remarkable yields of every portion of this farm would seem to indicate that this method of handling manure is highly satisfactory.

THAT CELEBRATED FIFTEEN-ACRE FARM—A CORRECTION.

Editor Gleanings:—See page 124 of June, 1904, issue of *Country Life in America* for an advertisement of Dietrich's 15-acres, in which he offers the same for sale at $16,000. It is not at all probable he sold it at $75,000 recently as stated on page 560 of GLEANINGS, when he offers it in *Country Life* for $16,000.

E. P. ROBINSON.

Sidney, O., June 9.

I am glad to see this correction, for it seemed to me that $75,000 was a fearful price. The clipping sent me did not contain any thing to show what paper it was taken from; and as a general thing I hesitate about printing any clipping unless I know the name of the paper giving currency to it.

FAKE MEDICINES TO BE TAKEN IN HAND BY THE POSTOFFICE DEPARTMENT.

We understand that the Postoffice Department has already commenced, not only ruling out of the mails advertisements of medicines that do not and can not do what they claim, but newspapers and other periodicals that accept advertising of this class. May God be praised for this righteous start in the way of defending the credulous and ignorant class The Hartford, Ct., *Times*, remarks in regard to the above:

> The consternation and wrath of that portion of the community which makes its living by preying on its fellow-citizens through such frauds will be in proportion to the actual service rendered to the rest of the people of the country.

Convention Notice.

The annual session of the National Bee-keepers' Association for 1904 will be held in September at St. Louis, Mo.

Sept. 27 and 28 will be devoted to Association work and its interests.

September 29, national day. We expect many prominent foreign bee-keepers to be present on this day.

September 30 inspectors' day. Twenty bee-inspectors from the United States and Canada are counted on to introduce and discuss the diseases of bees etc.

Mr. N. E. France will exhibit, in the convention hall, a large map of the United States, Canada, Cuba, and Europe. Each State and country will have a shelf attached to the map with a one-pound sample of each kind of honey produced. Many other exhibits of special interest will be shown

We expect to see the largest gathering of bee-keepers ever held in this country. A more detailed program will appear later.

GEO. W. BRODBECK, Sec.

1884 **PRICE LIST OF** 1904

Italian Queens and Bees

Untested Queens, each	$ 75
Tested Queens, each	1 00
Select Tested Queens, each	2 00
Two-frame Nucleus (no queen),	1 00
Three-frame Nucleus (no queen),	1 50
Four-frame Nucleus (no queen),	2 00
Full Colony, eight-frame, (no queen)	4 00

We are booking orders for Queens and Bees at the above prices.

We breed with scientific, intelligent methods from the best Imported and Long-tongue stock. Cheaper queens may be had elsewhere, but we make no effort to compete with the prices of the CHEAP-QUEEN men. Our stock is worth our price. You will be pleased with our stock and our prompt and careful attention to your orders. We guarantee it.

64-page Catalog of Supplies Free.

J. M. JENKINS,

WETUMPKA, - ALABAMA.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'

SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

Dittmer's Foundation

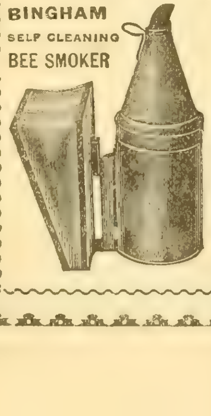
RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

GUS. DITTMER, - - - AUGUSTA, WISCONSIN.



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That goes without Puffing—Clean, Durable, and Handy—

Oldest, newest, and embracing all the improvements and inventions made in smokers, send card for circular to

T. F. BINGHAM,
FARWELL, MICH.

Volume XXXII. AUGUST 1, 1904. Number 15

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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

Entered at the Postoffice, at Medina, Ohio, as Second-class Matter.

PROMPT SHIPMENTS
OUR SPECIALTY

If you want your orders filled within 24 hours send them to us. We have the largest stock in Michigan, and can ship at once.

Beeswax wanted at highest market prices.

LEWIS C. & A. G. WOODMAN,
GRAND RAPIDS, MICH.

CAN SHIP TO-DAY.

¶I have the largest stock, and the best assortment I ever had at this time of year, and can fill your order the same day it is received. I have more Hives, Supers, Sections, and Foundation, Shipping-Cases, and every thing you may need than I can possibly sell this season.

¶But don't wait, send in your orders promptly, and they will be filled promptly.

YES, THEY ARE ROOT'S GOODS
AND SOLD AT ROOT'S PRICES.

¶If you have not my 36-page catalog, send for it, free. Beeswax wanted, either for cash or trade.

GEORGE E. HILTON,
FREMONT, MICH.

Hurry Up Orders

FOR

Hives,
Sections,
Foundation,
etc.

The supplies you order this month you want "right away"---"as soon as possible" That is what we are doing for others, let us do it for you. :: :: ::

For Root's Goods in Michigan===In a Hurry.
M. H. HUNT & SON, BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

* * *

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Queens Now Ready to Supply by Return Mail; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above. **Prices for Untested, during June, one, 75; six, $4.00; twelve, $7.50.**

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW YORK.—Very little demand for comb honey. Some trade for No. 1 and fancy white at from 12@13, while dark and amber are almost unsalable. Extracted is in fair demand, although prices are irregular. We quote from 5@6½ per lb., according to quality. Southern in barrels, at from 50@55 per gal. Beeswax is more plentiful and prices are gradually declining. We quote 28@29

HILDRETH & SEGELKEN,
July 20. 265 Greenwich St., New York.

MILWAUKEE.—The market continues about the same on honey as last reported as to values and supply; at this writing there is a feeling that the overstock of comb will yet be in demand at fair values. Extracted in bbls. is in better demand, and shipments of white or amber can be disposed of. At this time the general outlook on new crop favors the left-over of last crop; indications are not favorable for as large a crop as last year. We quote fancy section, 11@12; good to fancy, 10@11; dark or mixed quality, nominal. Extracted in bbls., cans, or pails, white, 6@7; dark, 5½@6. Beeswax, 25@30.

A. V. BISHOP & CO.,
July 21. Milwaukee, Wis.

BUFFALO.—Some new comb honey in the market, but is not selling fast. Little too early, and buyers waiting for lower prices. No market value to old comb honey. Fancy white comb, 15@16; A No. 1, 14@15 No. 1; 13@14; No. 2, 12@13; No. 3, 11@12; No. 1 dark, 11@12; No. 2 dark, 10@11. Old white extracted, 6½@7; old amber, 5@5½; old dark, 5. Beeswax, 30@32.

W. C. TOWNSEND,
July 23. 178 Perry St., Buffalo, N. Y.

KANSAS CITY.—The receipts of new honey are gradually growing larger; it is a little early yet for a good healthy demand, but with cooler weather we look for it to increase. Fancy and No. 1 comb honey is moving at $2.75 per case.

C. C. CLEMONS & CO.,
July 20. Kansas City, Mo.

CHICAGO.—There is a plentiful supply of honey of all kinds on the market, with no sales; prices, therefore, can not be more than on an asking basis. Very little if any choice to fancy comb, but a large amount of what would average No. 1 is offered at 10@12; no sale for off grades or damaged lots. Extracted white, 6@7; amber, 5@6. Beeswax, 28@30.

R. A. BURNETT & CO.,
July 19. 199 South Water St., Chicago, Ill.

ALBANY.—Honey demand dull in this market, so can scarcely give reliable quotations, but think if we had some new crop white comb it would sell at 15@16. Crop prospects in this vicinity are not good, and we look for good prices when season opens. Extracted, 5½@6½. Beeswax dull, 28@30.

MACDOUGAL & CO.,
July 16. 375 Broadway, Albany, N. Y.

SCHENECTADY.—Local producers report that they are securing a good crop of white honey, but very little of it, however, is ready for market, and there is practically no demand yet as weather conditions are not favorable.

CHAS. MCCULLOCH,
July 18. Schenectady N. Y.

ALBANY.—There are some enquiries for honey, and some want to sell. It is too early yet to give reliable quotations. Some small lots are selling at 15@16c, but demand is light as yet. We think September is the best month, or as soon as there is any brisk demand for honey. Crop in this vicinity is light. Beeswax, 28@30.

MCDOUGAL & CO.,
July 27. 375 Broadway, Albany, N. Y.

SAN FRANCISCO.—New comb per lb., nominal. Extracted, water-white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Beeswax, 28@29.

ERNEST B. SCHAEFFLE,
July 11. Murphys, Cal.

DETROIT.—Some new honey coming in. Fancy and A No. 1 is selling for 15@16. No dark honey in yet. Beeswax, 26@28.

M. H. HUNT & SON,
July 21. Detroit, Mich.

FOR SALE.—Light colored honey, fine flavor, barrels, 7c, cans, 8c; amber, 6@7. Sample, 10c.

I. J. STRINGHAM, 105 Park Place, N. Y. City.

FOR SALE.—8000 lbs. choice ripe extracted clover honey, in cases of two new 60-lb. cans each, at 7½ cts. per lb.; 335-lb. barrels at 7 cts. per lb.

G. W. WILSON, R. R. No. 1, Viola, Wis.

FOR SALE. Several tons of choice extracted clover honey, put up in kegs holding about 160 lbs. net on board the cars at this place, at 6 cts. per lb.

E. W. & F. C. ALEXANDER, Delanson, N. Y.

WANTED
FANCY COMB HONEY
In No-drip Shipping Cases.
Also AMBER EXTRACTED
In Barrels or Cans.
Quote your lowest price delivered here. WE REMIT PROMPTLY.
THE FRED W. MUTH CO.,
No. 51 WALNUT ST., CINCINNATI, OHIO.

For Sale.—25 bbls. fancy extracted white-clover honey. Write for prices, stating quality and kind of package desired. **Emil J. Baxter**, Nauvoo, Hancock Co., Ill.

For Sale.—Extracted honey, white candied mesquite, 5½ cents per pound; amber 5 cents, in 75-pound cans, f. o. b. here. **W. C. Gathright**, Los Cruces, New Mex.

Wanted.—Beeswax; highest market price paid. Write for price list. **Bach, Becker & Co.**, Chicago, Ill.

Wanted—Comb and extracted honey. State price, kind, and quantity. **R. A. Burnett & Co.**, 199 South Water St., Chicago, Ill.

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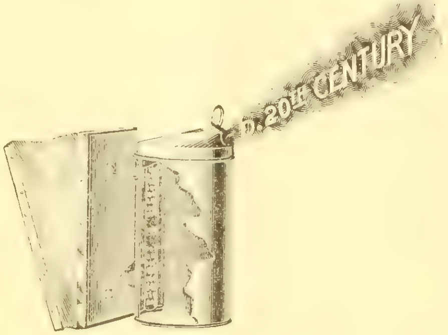

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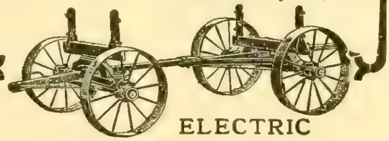

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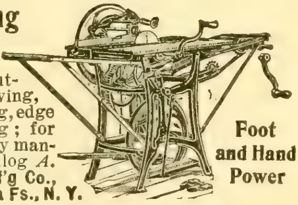

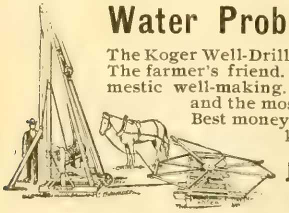

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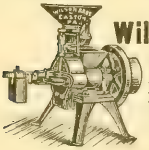

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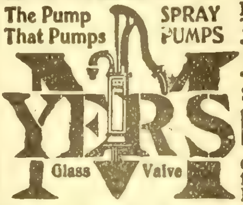

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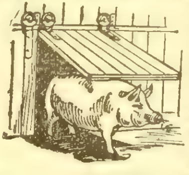

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W. Z. HUTCHINSON, Flint, Mich.

WHAT THEY SAY.

W. H. Putnam:—I delayed answering your letter until I had read the June number of the *Rural Bee-keeper*, and must say, as a bee-keeper of 22 years' experience, I am more than pleased with it, regardless of the assertions of some that the publishing in this line was already overdone; and if the improvements continue it will certainly be second to none within its first year of publication. I consider the June number alone worth several years subscription to any practical live bee-keeper; and I will say, let the good work go on and on. You have a good field; and the fact of our having a bee journal published in our own State should be a lasting stimulant to all bee-keepers of Wisconsin and the Northwest, and 50 cents certainly can not be invested to better advantage. You may send me some more blanks. Yours truly,

Hillsboro, Wis. Elias Fox.

Send 10 cts. for three back numbers or 50 cts. for one year.

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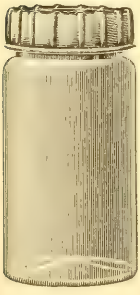

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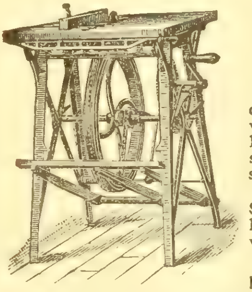

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ILLUSTRATED SEMI-MONTHLY
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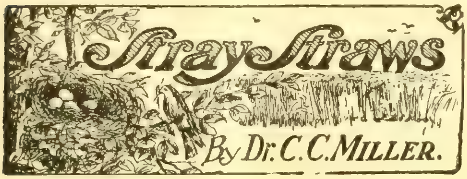


Stray Straws

By Dr. C. C. MILLER.

SWEET-CLOVER pollen, quite unlike that of white clover, is of a rather dull yellow color.

THANKS, friend Womble, for additional testimony that alfalfa yields in the East, page 705. But please explain why you say, "The only trouble I had was in getting rid of it."

THAT CUT of Mack's swarm-catcher, page 706, should have a board cover instead of a wire one. [But the engraving had already been made before I noticed that our correspondent specified a board.—ED.]

BRO. DOOLITTLE, p. 690, urges again the value of pollen. Keep it up, Bro. D., for a good many look upon pollen as so much dead waste. I formerly thought a pound of pollen was worth as much as a pound of honey. I'm inclined to think now that it's worth a little more.

WHEN MR. HOOPER showed he was an expert by "the way in which he picked up the frames, handled the smoker," etc., p. 694, did you note, Mr. Editor, whether his thumb or his fingers came next the fire-box of the smoker? [He handles it both ways; and, to be frank, I find myself using both ways.—ED.]

MIGRATORY BEE-KEEPING on a large scale seems contemplated in Belgium, by rail, a special train running for that purpose if a minimum of 16 cars are ordered, starting at 4 in the morning, stopping only to take on cars of bees at stations along the route, and making the trip in about six hours. [We shall be glad to have you give us the result of the experiment.—ED.]

REGARDING the point raised by F. N. Somerford, page 704, the testimony is that a queen mates upon the wing, and without some very strong proof to the contrary it can hardly be believed that she mates in any other way. I don't know, but I believe it is a physical impossibility for a queen to mate in the hive, hence an impossibility for a queen to mate after she is clipped.

LOOK HERE—isn't this thing of inventing new bee diseases being carried a little too far? First we had foul brood alone. Then came the "nameless disease" which was afterward "named" paralysis; and now we have black and pickled brood, and those Utah fellows are getting ready to take out a copyright on something else. Better stop soon. [May be it is not a new disease. Perhaps later developments will throw some light on the subject.—ED.]

RIGHT, Mr. Editor; let discussion as to manufactured comb honey come well to the front at St. Louis, and let the reporters try to pick out two sections just exactly alike. [Yes, let us offer to give them $500 or even $1000 if they can find two sections that are exactly alike in filling and capping. Of course, if comb honey were manufactured there would be a lot of combs that would have the same imprint, the same pop-holes, the same regular capping, and every thing else the same.—ED.]

STENOG, p. 689, speaks of the good work of the *American Bee Journal* in convention reports, and of GLEANINGS leaving that field free. What a blessing that is will be appreciated by those who are familiar with European bee-journals. After one of the big conventions, different journals will have page after page of the same thing reported, and some of the little fellows will tag along after, copying from the others. Then, too, there is a big difference in the time of getting out the reports. Mr. York will rush through a long stenographic report in a very few numbers, while foreign reports will string along for a year — sometimes longer!

SAFFORD's extracting-frame, according to my experience, is worth while. I tried the simple frame advised by the editor, but it was too much trouble to keep the sections from tumbling out. Took too much time. There's a mix-up in the last sentence of the footnote: "I see our artist has made your frame hold six sections instead of four. The former would not go in an ordinary standard extractor." You can straighten that up to suit yourself, Mr. Editor, but in any case will not eight sections take about the same room as an ordinary extracting-frame? [We shall be glad to get your testimony, doctor. Yes, it was my mistake. The cut was all right, after all.—ED.]

FASTENING foundation in brood frames by the wedge-and-groove method works so beautifully here that it seems to me if I were you, Bro. Morehouse, I'd try baking all the shrink out of the wedges in Colorado. P. 692. [A queer world this. There are some people who do not make the wedge-and-groove plan work, and they have not a dry climate either; and there are still others who will not have any thing else. Very often our subscribers wonder why we do not make supplies to suit their particular notions. One will say, "If you make such an article so and so, it will be all right." But that man's idea of the thing would be all wrong with another.—ED.]

MORE AND MORE American methods of bee-keeping are gaining recognition in European countries. They poke fun at us as given to faking, but all the same I notice that it is becoming quite the fashion to have items copied from American journals, some of them at second and third hand. *L'Apiculture*, the oldest of the French bee-journals, now in its 48th year, which formerly ignored American journals, now quotes freely from them, and has secured as a regular correspondent none other than our good friend C. P. Dadant. The whirligig of time brings strange revolutions. Formerly *L'Apiculture* fought bitterly the teachings of the elder Dadant: now it seeks the teachings of the son. [See article elsewhere on this subject in this issue.—ED.]

FRIEND A. I., I enjoyed reading your Home talk, p. 611, and heartily endorse all you say except when speaking of your wife you say: "Of course, that word 'adore' does not quite fit at our stage of life." I feel very sure it does. One meaning of "adore" is "to render divine honors to," and in that sense it does not fit at your stage of life, nor at any other stage. Another meaning is to "feel or exhibit profound regard or affection for;" and if it doesn't fit in that sense, then I want to cut your acquaintance. You needn't apologize in person; a printed apology will answer. [My dear old friend, I do not know but I shall have to acknowledge to you that I think just as you do; but it did not seem quite proper that I should say it right out before the great wide world. And another thing, Christ Jesus should always come first, even before the wives God has given us. I feel sure you will agree with me in this.—A. I. R.]

AT ONE END of the line stand those who say that it is best to leave superseding of queens entirely to the bees; at the other end stands that Rocky Mountain chap, saying, "If a queen dares to live more than a year, kill her." Of the two extremes I think the first would be the safer in this locality. But I'd rather stand in the middle of the line. *Generally*, the bees in this region will supersede a queen as soon as any superseding is needed. Whenever a queen is not doing good work, her head should come off, whether she is more or less than a year old. I wonder if there isn't something about the climate that makes queens play out quicker in Colorado. I fancy Bro. Morehouse flinging back at me something like this: "Generally, in this region a queen does her best work in her first year; and if you should take off her head when she shows failure the following spring you'd interfere seriously with building up for the harvest." And I don't know of any good reply to make.

MR. ETHICS shut himself up, did some hard thinking, and concluded that no bee-keeper has any right of any sort to the territory he occupies, page 595. If Mr. Ethics will shut himself up again, and do a little harder thinking, he may conclude that he has taken a very superficial view of the case. He thinks that the men who own the land "have the same moral right to keep bees for the production of honey that they have to keep cows for the production of butter and cheese." The man who produces butter owns the feed he gives his cows; if I should take any of that feed he could have me punished for theft. Does he own the nectar produced on his land? If I, through my bees, should appropriate that nectar, could he have me arrested for theft? Years ago I was foolhardy enough to say that there should be laws protecting a bee-keeper in his rights to a given territory. Prof. Cook was my strongest opponent, but he said it might as well be understood first as last that the man who owned the land didn't own the nectar on it. You haven't yet taken in the whole case, Mr. Ethics.

Pickings from Our Neighbors' Fields
BY
"Stenog."

DEUTSCHE IMKER AUS BOHMEN.

The present status of bee stings for the cure of rheumatism, or at least the alleviation of that terrible scourge of the human race, is receiving much attention in Europe. The following in regard to the matter appeared lately in the German periodical I am quoting, from the pen of Dr.

J. Langer, of Prague, Bohemia. At first I thought I would not translate it; but the communication from Mr. Rich, in this issue, caused me to change my mind. Then I could not find the journal; but, fortunately, I found a translation of it in *L'Abeille* (The Bee), one of the best French bee-journals published, although it does not come from France. As the matter will not suffer by being run through a French colander I give it here as I find it. Each reader can draw his own conclusion as well as his own stings after he has received them; but it seems to be certain that the time has passed by when the use of stings for rheumatism can be regarded as entirely a fad or a piece of superstition.

The belief that the sting of the bee may exercise a salutary influence on rheumatic pains is very widely spread among bee-keepers, and dates back from early times. Berlepsch mentions very briefly this fact in his manual, and declares that it is very easy to believe and easy to explain.

Since my researches on the poison of bees were made known, a number of bee-keepers and doctors have questioned me concerning my opinion as to the influence of stings in rheumatism. Having made no personal experiments on this subject I have been in the habit of replying that, very likely, the matter contained in bee-poison operates on the patient like applications of blisters made by cantharides.

Dr. Terc, a physician at Marburg, made a number of personal applications in this way. As early as 1888 he had applied about 39,000 stings of bees to 173 persons, and he made note of the remarkable coincidences between the application of the remedy and the relief of rheumatism. In 1903 he presented the result of some new observations to the Royal and Imperial Society at Vienna. As his report is not yet printed, the author has confided to me his manuscript. It is a summing-up of the cases already noted—experiments made on more than 500 persons. Being a bee-keeper and a doctor, I believe it is my duty to give the result of this interesting work to the bee keeping world.

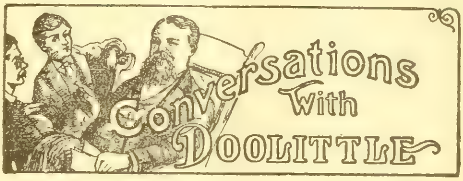
The results obtained by this doctor cause him to speak with enthusiasm on the use of bee-stings as a cure for rheumatism. He is persuaded that all articulatory rheumatism, chronic or not, is curable by the poison of the bee; and the disease is healed more rapidly if the cure is applied early. It should be noted that each case presents characteristics peculiar to itself. The doctor is under the impression that these stings have also a very salutary influence in the cure of acute rheumatism. He was impressed by the fact that none of the 30 patients attacked by that kind of rheumatism was afflicted with heart trouble. Stings have even been efficacious in cases of muscular rheumatism and facial neuralgia. The effect of the poison is local or general. The latter renders the sufferer immune, and thus leads to a cure. It is slower than other remedies—for example, salicylic acid, but it surpasses them in its effect. The doctor and the patient should have patience and confidence. This remedy should be kept from children and old people, those who show a complication of troubles such as a lack of blood, tuberculosis, inflammation of the kindeys, or fever. However, in the case of the latter as soon as the fever has disappeared one may apply the cure in question to the patient. Dr. Terc has seen no danger except in a case of weakness of the heart; and he is disposed to believe that serious troubles with the circulatory apparatus are present when several applications of stings produce general troubles. When from time to time we read of the death of a man, occasioned by a single sting, we may rest assured that his days and perhaps his hours were numbered, and that he would have succumbed soon without any accident.

The method of application is very simple. The bee is seized between the thumb and first finger. It is made to sting on the spot chosen, and is killed by squeezing it. The sting remains in the wound, or at least is not removed until the automatic movements of that organ have entirely ceased. Dr. Terc begins his cure by applying one or sometimes three stings, applied at the extremities or on the back. According to the reactions produced he increases the number more or less. He has applied as many as 150 in a day; but in general he advises that not more than 100 be used. The treatment extends through one, two, or even three years.

After beginning, he causes the patient to make careful observations for three days, after which he can with certainty predict the cure of the patient, otherwise he dissuades him from continuing further. The pain of the cure is woeful and progressive, and it needs a certain degree of heroism to go to the end. On this account it will be readily understood that the methods used by Dr. Terc become popular very slowly; nevertheless they never disappoint one who perseveres in them. It is self-evident that the sting cure does not do away with the changing operations in the body of the patient, such as atrophy and the degeneration of tissue.

Perhaps we shall be able some day to make a serum from animals rendered immune to the stings of bees; then it will be possible to apply that remedy in a way less painful to the human body.

"I hail with pleasure," says Dr. Terc, "every improvement in the method I have indicated. As for me, I am fully resolved on the task I imposed on myself 23 years ago."



SOURED HONEY.

"Say, Doolittle, I am in a 'peck of half-bushels' this morning, as the old lady said."

"What is the trouble to-day, Brown?"

"You know I had my honey all piled up nicely in the parlor of the house. Wife took up the carpet last spring on account of the carpet-bugs getting into the carpet, and she told me I could put our section honey in that room this year to save lugging it upstairs. I thought this would be quite a scheme, and last night I found, after I had taken off two tiers of the sections in crating the honey yesterday that the sections further in the pile had a watery appearance, while those near the floor at the bottom smelled quite sour; and some I had taken off before all the cells were sealed had actually run out on the floor, and was so sour and thin that I was almost scared. Can you help me any?"

"In the first place, sections having many unsealed cells should have been allowed to stay on the hive till all the cells were sealed; for unsealed honey should not be put on the market to the injury of the sale of good honey. Where honey is left on the hive till fully ripened and sealed over, it is not as liable to sour as that which is unsealed is."

"I thought possibly this was a cause of part of my trouble, and you can rest assured I shall never do it again."

"I hope not. But there is a possibility that there might have been some other trouble with the honey, for I have noticed that certain kinds of honey, like apple-bloom and dandelion, will not ripen up in the same room in which clover and basswood honey will do fairly well. Then in certain seasons the bees will seal up honey very much more unripe and thin than they will in other seasons; and the more unripe honey is, even when capped over, the more liable it is to grow thinner, and sour in a room in which thoroughly ripe honey will keep quite well."

"That accounts for a part of it again, for it was my very early honey which was the worst."

"I judged that would be so. But all honey, if kept long enough in a cool damp room, will sour after a while, as it will absorb the moisture from the room where the same is cool and damp, like a lower room on the north side of a house with no draft of air through it."

"That hits me again, for our parlor is in the northwest corner of the house, over the cellar, and the blinds and all windows have been kept closed. And I thought that was just as good as upstairs, where I had always kept it before. I had to calk some of the cracks up there, they were so big I feared the bees would get in. I shall know better next year, you bet."

"How did you pile the honey in the room?"

"Set it right down on the floor, of course. How would you pile it?"

"Not like that. I see you missed in your piling one very important point in this matter. No one should ever place nice section honey, nor any other, for that matter, on the floor of any room, no matter what the temperature, nor how thoroughly ventilated."

"Why not?"

"Let me give you a little of my experience. When I first began bee-keeping I used a room quite similar to what you say your parlor is, and did just as you did in putting the sections on the floor."

"Well, it seems that others have been caught the same as I. This is a little consolation, but it won't help the honey. Excuse my breaking in. I felt like it, that was all."

"When I came to crating that honey I found that the honey in the sections next the wall and floor to the room had soured—not only that in any unsealed cells next to the wood that chanced to have honey in them, but that the honey was bursting from the sealed cells, while that next the outside of the pile, and higher up in the room, and out from the wall, had not grown thin or watery at all. I took the hint at once, and the very next year found me with a temporary platform fixed in a room on the sunny side of the house, and screens over the windows, the windows being left open fair days. This platform was made of slats of sufficient strength to hold the honey, the same being spread apart enough so that the edges of the sections just caught on them, said platform being raised a foot from the floor. When another tier of sections was to go on top, strips were placed between, and so on clear to the top of the pile, and in this way there was no hindrance to the air from circulating all through the pile, and up along the face of every section, on both sides, and also above and between each row of the same."

"Did this work?"

"Certainly it did; and I have never had any honey sour—no, not even the honey in any unsealed cells that might happen to be along the wood of the section."

"Well, that is worth knowing, and I am glad I could have this talk with you. But what can I do with my honey that is watery now?"

"If you will fix such a platform up in your upstairs room you used to store honey in previous to this year, and store the watery honey there for a few weeks, I think it will improve so as to be salable; but that which has soured can not be brought back very well again—not well enough to be salable at least, according to my experience. You can use it for early feeding of the bees next spring, if you desire; but I should not want to feed it this fall, for the bees might not winter well on it."

"Then you would not try to sell it?"

"No. I would extract the honey out of the combs this fall, allow the bees to clean up the combs by putting a whole superful over a strong colony, and, after cleaning, store the combs away till spring, when they can be used for bait sections next year. In this way it will not be an entire loss to you."

"Won't that which the bees get by cleaning the sections harm them?"

"I do not think so, as there will be very little honey left after extracting, as the honey will be so thin it will nearly all leave the comb."

"But suppose the bees should not have honey enough for winter. Is there no way I can use this honey for feeding?"

"You can scald it, or cook it until it is sufficiently thickened so as to be like other good honey, all but the flavor, when it might do for winter feeding. But I would go a little slow on it."

Editorial
By E. R. Root.

Let me urge again the very great importance of getting your comb honey to market as early as possible. Why it should sell better from August on till January than from January till August I can not say; but the honey-buyers and commission men know that this is a fact.

NO-DRIP CLEATS TOO THIN.

Mr. R. A. Burnett is reported in the *American Bee Journal* as saying that the no-drip cleats in no-drip shipping-cases should not be less than ¼ inch thick. When only ⅛ inch, the sections are not raised high enough to be out of the drip that may run out of the combs. Mr. Burnett is doubtless correct for Chicago and vicinity. In Colorado the bee-keepers want the strips no thicker than ⅛ inch. We should be glad to get expressions from honey-buyers and commission men as well as bee-keepers.

AN UNUSUAL AMOUNT OF SWEET CLOVER.

THERE seems to be an unusual amount of sweet clover this season—so much of it that our bees have not annoyed us by robbing as they usually do at this season of the year. While, undoubtedly, a part of the honey comes from white clover that is not yet out of bloom, there is a good big portion of it that comes from sweet clover, because bees seem quite busy on it.

Sweet clover is not a noxious weed, because it grows where nothing else can thrive. It is spreading from one end of the country to the other; and I believe it is going to be a great help to the bee business, for it will keep down the robbing tendency, and at the same time give the bees sufficient stores to take care of their daily needs without drawing on the winter supply gathered in the height of the season.

NOTHING GAINED BY SELLING UNRIPE HONEY, AND MUCH TO LOSE.

THE *American Bee-keeper*, in indorsing a statement in an exchange, to the effect that unripe honey on the market has done much to injure the business, goes further and says there is no advantage gained in extracting before the honey ripens, because "ninety per cent of the total evaporation comes during the first night in the hive, and the further improvement is not so much a matter of evaporation as a matter of influence caused by the presence of the bees —an influence subtile, but positively known to every experienced apiarist, whereby the honey slowly but surely attains that degree of body and flavor that makes the consumer who samples it wish for more." I wish to indorse most heartily the sentiment that no bee-keeper should put out extracted honey until the same has been most thoroughly ripened. There are times when unsealed combs can be extracted without waiting for it to be capped over; but as a rule the average person had better wait until every inch of comb is completely capped.

THE UNTIMELY DEATH OF H. C. MOREHOUSE.

IT is with very much regret that we are compelled to record the death of Mr. H. C. Morehouse, one of our editorial writers, July 24, at Boulder, Col., after a severe illness of only nine days. We had only recently engaged him to edit the department of Rocky Mountain Bee-keeping, and the two first installments which we have already published certify to his excellent editorial ability. He had something over a thousand colonies. He was a man of ripe experience, and from our brief acquaintance with him we judge him to have been a most lovable man. GLEANINGS feels that it has suffered a severe loss in the death of so excellent a writer; and although he had just begun his work, yet so excellent was the character of it that he could not help leaving his impress on the minds of our readers. He leaves a wife, and a boy two years old. We extend to the family our sincere sympathy.

MATING QUEENS IN MINIATURE NUCLEI AN APPARENT SUCCESS.

SEVERAL times the belief has been expressed in these columns by correspondents and even by myself that the miniature queen-mating nuclei as recommended by Swarthmore (E. L. Pratt) were so unreliable as to be practically a failure; and it is true that our correspondent has abandoned some of his earlier models and the manner of using them. While *he* made them work, he has devised better ones.

One of our correspondents, after testing his first nuclei, reported that the experiment had been very expensive in that *every one* of the small Swarthmore nuclei into which he put a queen had failed in having even *one* queen successfully mated—bees swarmed out, they were robbed out, etc., and that he did not think we should publish such stuff. But notwithstanding all the adverse reports, Mr. Pratt has been continuing to work at the problem, claiming that he was having queens mated in them successfully.

Dr. E. F. Phillips, of the University of Pennsylvania, visited him at his home, in the height of his queen-rearing operations last season, and saw that he was indeed making a success of these "baby nuclei." When he came to Medina to renew his scientific work he reported what Swarthmore was doing. We had some small one-frame boxes made, and, later on, some of two frames. They have been put to the test, and *so far* are working very satisfactorily. But honey has been coming in a little every day, and this may make a difference. However, we have reason to believe they will work later on, because we have thus far attained a degree of success far beyond what we have had before.

We have had reports from various queen-breeders who have made these little nuclei work; and we feel satisfied that what others can do we can.

This matter is not alone interesting to the queen-breeder. It will mean a great many dollars to the honey-producer. When he is ready to requeen, all he will have to do will be to make up a batch of 25 or 30 nuclei and give them virgins or ripe cells. A few nuclei like this will raise all the queens he will need, in a short space of time, and the expense will be merely trifling. He will hardly need to use up one colony for this number, as the nuclei will be so small.

When Dr. Phillips visited Swarthmore he found that sometimes, when he caged a laying queen out of the little nuclei, he put *all* the bees in the mailing-cage. That seemed incredible at the time; but we have done the same thing right here in Medina.

This matter is of considerable importance, because there will be no reason now why the honey-producer can not requeen at least once in two years, and oftener if he thinks there is any advantage in it, at a great saving of time and nuclei.

The great majority of the best producers requeen once in two years, and some go even so far as to think it best to requeen every year, because there will be less swarming when a colony has a young queen and less drone brood.

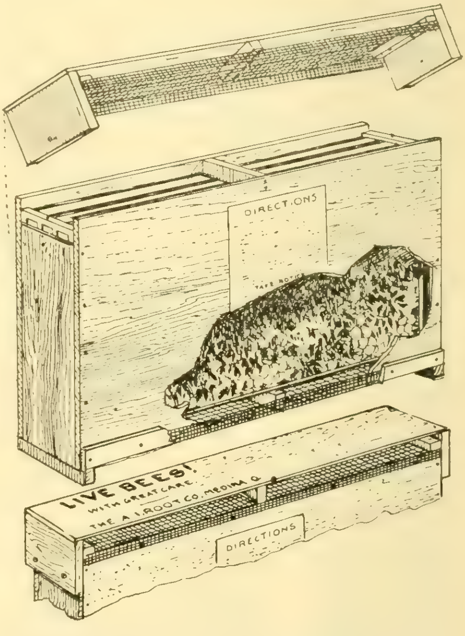
HOW TO SHIP BEES.

At different times we have had requests for an article on how to ship bees. As we have had a large experience we have thought best to describe the method we use.

The very heavy winter losses made an exceptionally heavy demand for bees in nucleus and colony form this past spring and early summer. While we have been uniformly successful, yet we have been experimenting and testing various forms of shipping-boxes, until we now have something that stands the test for all seasons of the year for long travel, and which on arrival delivers the bees fresh and in good order. Of all the hundreds of nuclei we have shipped this season, I do not think there has been a single complaint of bees arriving in bad order.

The illustration opposite gives almost at a glance our method of shipping three-frame nuclei, the one, two, and four frame being made exactly in the same way, only narrower or wider as the case may be. The box for lightness is made of well-seasoned basswood, only $\frac{3}{16}$ thick for the sides and ⅜ for the ends. Galvanized wire cloth is nailed under the bottom; and that the edges may not fray out or become loose, narrow strips are nailed along the sides as shown. The galvanized cloth is much stronger, and is, therefore, used for the bottom. To raise this up so as to provide ventilation, two cleats are nailed across the two ends. For the cover we have common wire cloth folded to the proper width, but secured to thin board, of the kind shown detached at the top and bottom of the engraving. The end of the wire cloth is nailed on to the cleats shown at the upper right-hand corner, secured to square blocks supporting a thin board $\frac{3}{16}$ of an inch thick. When this whole cover is set down on to the nucleus, it covers the space left open at the ends of the frames; and when the end-blocks are nailed in place we have a convenient hold whereby the box can be lifted and carried about. The thin board is nailed over the top, not only to protect the wire cloth beneath from the corners of boxes or any sharp projection, but in order to shade it from the hot sun. In spite of printed requests to the contrary, expressmen *will* leave the bees out in the hot sun; and this of itself may kill the bees or put them in poor condition on arrival. Hoffman frames ordinarily do not need to be secured; but as an additional precaution for rough handling we have cleats grooved to come down over the ends of the top-bars, as shown in the illustration. These are nailed in place. Similar cleats, nailed on the inside of the ends, hold the end bars securely.

On the side of the box are pasted some neatly printed directions telling all about stimulative feeding to make a strong colony of the nucleus. Indeed, it gives full directions how to make increase so that almost any beginner with a little lot of bees like this can go ahead understandingly and meet with success.



In selecting our combs we take those that are just as light in stores as possible—no more than enough to carry the bees through safely to their destination; for even at a rate and a half, the expressage may be considerably more than the value of the bees. Therefore we have the box made of basswood, which for its weight is about as strong and tough as any wood we know of. Then it is cut down to only $\frac{3}{16}$ inch in thickness, so that three-frame boxes weigh only 3 lbs. With three light combs of brood covered with bees the whole thing weighs 12 lbs.

I said that we shipped bees in full-sized hives. For this purpose we take brand-new hives, newly painted; secure the bottom-bar to the hive with double-pointed staples.

Wire cloth is nailed on to a frame the same size as the top of the hive, and 1½ inches deep. The wire cloth should never come close to the top of the frame, for the bees should have a clustering space where they can get a good deal of air in case of necessity. Frames are secured in the same manner as in the shipping-boxes; and when the bees are ready to be shipped out, the cover is secured by corner posts to a distance of 1½ inches over the top of the wire cloth. The purpose of the cover is to protect the wire cloth, both from the sun and from the sharp corners of boxes or other articles. The hive, of course, weighs a great deal more than a shipping-box; but the customer, on receipt of it, has only to put the hive in place, remove the wire cloth, insert the alighting-board, put on the cover, and the bees are "at home."

Right after a honey-flow it is not always possible to secure combs that are light in stores. For that reason the shipment will be a little heavier in July and August than in May or June.

ANOTHER COMB-HONEY CANARD.

THE following is an extract from the Pittsburgh, Pa., *Gazette*, of Sunday, July 24, 1904:

> HONEY-COMBS ARE MADE FROM OIL.
>
> ARTIFICIAL PROCESS IS GUARDED SEDULOUSLY FROM THE GENERAL PUBLIC; CURIOUS USES OF PETROLEUM.
>
> Among the peculiar uses to which low-grade petroleum and the refuse of the better grades are now being put is that of the manufacture of artificial honey-combs. There are four factories devoted to this product in different part of Pennsylvania and Ohio, one of them being in the immediate neighborhood of Pittsburgh. The process for making the combs is said to have been evolved by a petroleum expert only after years of experiment, and it is so much of a secret that not only are visitors excluded from the factories in which the combs are made, but the locations of the latter are kept secret as far as possible from all but those connected with or employed in them.
>
> The artificial honey combs are so nearly like those made by the bees, both by the chemical composition of the wax as well as the cell formation, that the two can not be told apart, even by experts. The idea of making them was suggested by honey-dealers of the class whose "bees" produce more of the sweet article than combs can be found for. It is asserted, however, that neither the empty nor the filled combs find a market in this State, on account of the vigorous enforcement of the pure-food law.

Of course, we replied at once. We sent one of our $1000 reward cards, and further agreed to give them the sum of $1000, backed by any kind of bond that their attorney could draw up, if they could prove that there were *anywhere* in the United States artificial combs, such as they described, filled with glucose or honey. We explained that we are makers of comb foundation—a legitimate article that has been used by bee-keepers for years.

While our letter may have some effect, yet letters received from thousands of people from all over the United States will have vastly more effect. We therefore request our readers to sit down and write a short but courteous letter to the editor of the Pittsburgh *Gazette*, protesting against such statements as appeared in their issue for July 24, and request a retraction or a correction, on the ground that the article in question is doing a very large class of honey-producers a direct damage in that suspicion is cast on the purity of *all* comb honey. Do not delay this one day, but send your letter out the very next day if possible. We are just on the eve of the comb-honey season, and such stories do an incalculable damage to the market, and should be refuted at the very beginning of things.

REVISED REPORT OF HONEY CROP FOR 1904.

SINCE our last report conditions have improved; rains ceased, warm weather came on, with the result that there have been flows of clover and basswood honey. In some localities where clover had failed, basswood gave a fair yield.

Were it not for the fact that there had been a heavy mortality of bees during the past winter, the crop of clover and basswood honey might be as heavy as last season; but in many localities where there have been good flows of honey there have been too few bees to gather it. It is therefore my opinion that the aggregate amount of clover and basswood honey will be much lighter than last season; and when I say this it should be understood that the crop last year was *exceptionally heavy*, heavier than we reported for the reason that a large amount of honey not reported was dumped onto the market *after* the regular selling season. Many held back thinking to get better prices; but in this they were most woefully disappointed, and they have no one to blame but themselves.

To particularize, the yield in parts of Wisconsin, Minnesota and Michigan will be from one-fourth to one-half a crop; in Iowa, Illinois, Indiana, New York, Pennsylvania and Ohio, from the best information we can gather, the yield will be fair, but the aggregate amount of honey will not be as heavy as last year, owing to the aforesaid winter losses. Buckwheat in New York promises well. In the New England states, the yield has been light to fair.

Reports are lacking from Colorado, but the few received indicate that the crop will not be as large as was anticipated; yield in Nevada will be good; in Utah will be largely a failure. We have not heard from Canada, but the prospects so far as we can gather are good. In the meantime keep on sending postal card reports of the season.

NO MORE DRONE-LAYERS WANTED.

IN our last issue we asked for drone-layers, promising to send a laying queen instead, providing such drone-layers were sent at once. We have now received all we require for the purpose of scientific investigation, and request our readers not to send any more.

N. E. FRANCE, GENERAL MANAGER OF THE NATIONAL BEE-KEEPERS' ASSOCIATION; FOUL-BROOD INSPECTOR, AND LECTURER AT FARMERS' INSTITUTES.

Some eighteen or nineteen years ago, about the time I began to take editorial charge of this journal, we received a few articles from Mr. E. France, the senior member of the firm of E. France & Son, at Platteville, Wis. There was something about the writings of this veteran that showed unmistakably he was a master of his profession. The short cuts that he recommended for facilitating the work of handling the bees showed very clearly that his knowledge came from that best of all schools — experience. At this time the son, N. E., was comparatively unknown; but some years later, when I visited the Frances, I had the pleasure of meeting the younger man, and I saw at a glance that he was a veritable chip of the old block. Intensely practical like his father, he was readier to grasp new ideas and inventions. The two, father and son, made a fine team; and that they pulled together is shown by the immense crops they secured. I learned that the junior France spent his winters in teaching school. Gradually the mantle that had been worn by the father was assumed by the son, and now he has come to be the principal man of the firm. But the younger France did not come prominently before the world until foul brood had got such a fearful start in Wisconsin. Then it was that he showed his ability "to do things" by going down to Madison and lobbying in the interests of one of the best foul-brood bills that has ever been passed—a measure which, through his generalship, became a law, and which has been in active operation for seven years. But at that time Mr. France had no idea of being himself foul-brood inspector. He simply saw the urgent necessity of a strong and efficient measure that would stamp out the disease that threatened the destruction of a large part of the bees of Wisconsin. To make a long story short, he was appointed inspector of apiaries—a position he has held with signal credit to himself for seven years; and so faithfully has he performed his duties that, were it not for the importation of the disease from other States, he would have stamped it out. As it is, he has it well under control.

For sixteen years preceding his appointment as inspector he was engaged with his father in producing immense crops of honey and big shipments of fruit. During that time they have produced the enormous amount of 460,000 lbs. of honey, or an average of 27,850 lbs. per annum, from an average of about 450 colonies located in several outyards. But, as if so many bees were not enough to keep them busy, they ran in connection with the bees a twenty-acre fruit-farm, selling annually $50.00 to $80.00 worth of asparagus; $150 worth of beets for stock feed, and from 3000 to 12,000 quarts of berries.

Of course, they do not attempt to do all the work themselves; but during five to seven weeks in the height of the season they employ some thirty or more persons, most of whom are boys from sixteen to twenty years of age. To get the best results possible, each hand is drilled for some special out that line of work.

The junior France's prominence as a bee-keeper, and his successful work as inspector, soon drew the attention of the authorities of the State to him, with the result that he was finally sent out to lecture at farmers' institutes. He is away a great deal of the summer, except during the berry and honey season, and a large part of the winters. He lectures at a hundred institutes each winter in his own State, and sometimes he is called to go into other States to talk bees and fruit to the farmers. So persistently is he being sent from one town to another that he travels something like 4000 miles by rail each year, inspecting apiaries and treating bees, and about 2000 in attending institutes.

Some few years ago, when Mr. Secor announced that he could not accept the position of General Manager of the N. B. K. A. any further, and requested the members to look for some one else, a careful canvass was made on a part of some of the leaders of the organization, resulting finally in the selection and election of Mr. France for the important office. Notwithstanding he has held the position but a little over a year, the membership under his management has increased about half. He has been found tactful, careful, and capable; and at the present time he enjoys the respect and confidence, not only of the people of his own State, but of the bee-keepers all over the country.

Personally, Mr. France is a pleasant man to meet. He is square of build, rugged and forceful in appearance, and when you hear him talk you can not help feeling that *there* is a man like his father — one who knows perfectly well what he is talking about.

For twelve years he has been President of the Southern Wisconsin Bee-keepers' Association; four years Secretary of the Wisconsin State Bee-keepers' Association, and five years President of the same organization; all of these in addition to his duties to the State and to the N. B. K. A. Verily he is a busy man. Some one said, if you wish to get any thing done, and done well, go to the busiest man you can find. While that is not always true, results go to show that the rule holds good in the case of Mr. France. He has been tried, and has not been found wanting.

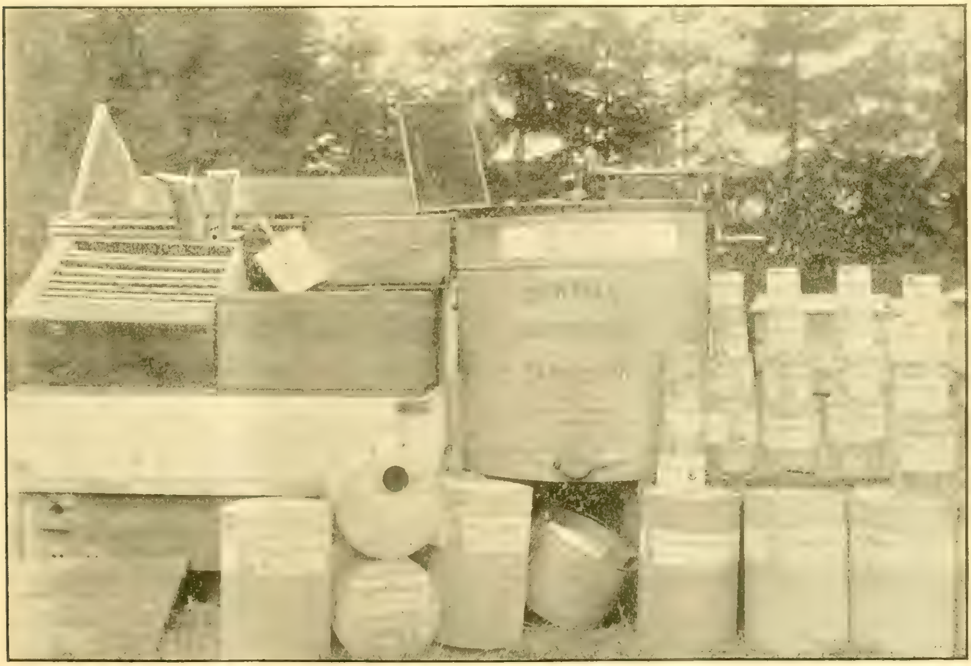
Notwithstanding he has been a tremendous worker, with these many duties that were thrust upon him by his State and by the bee-keepers at large all over the country, and notwithstanding the advanced age of his father requires that he take personal charge of their own large business, he is hale and hearty, and at 47 he is able to do what would crush many younger men.

Perhaps the secret can be explained by the fact that he never played cards nor gambled; never drank any intoxicating liquor, nor used tobacco, and that he has been a member of the Methodist Church since 1880.

But I came very near forgetting to make reference to the engraving. The large Cowan extractor shows for itself. This is the machine that Mr. France uses exclusively in his yards. At the left is shown one of the large quadruple hives, or, as some call them, "tenement" hives. The fact that E. France & Son are the only users of such hives does not prove at all that they are not practicable when properly managed. Over on the right are packages in which the France honey is put up in small lots. Not all their honey is put up in this way, for a large part of their honey is put up in barrels and kegs. Mr. W. A. Selser, 10 Vine St., Philadelphia, is a very discriminating buyer. For his city trade he can not have any thing but white clover honey. I remember his once getting a large shipment from E. France & Son, because he knew their goods were first-class; and if the firm said it was strictly white clover, without basswood or any thing else, he could depend on the statement.

N. E. FRANCE.
General Manager of the National Bee-keepers' Association, and Foul-brood Inspector for Wisconsin.

Perhaps in this connection it might be well to state that Mr. France has tried the new treatment of using formaldehyde gas for destroying the germs of foul brood. The test he has already made does not warrant him in recommending it to the average Wisconsin bee-keeper, as he found that some combs after treatment would transmit the disease again, and he there-



FRANCE'S HIVE, EXTRACTOR, AND HONEY-PACKAGE.

fore concludes in a recent report that the McEvoy treatment, after all, is the only reliable one for the average person to use.

GENERAL
CORRESPONDENCE.

LUMBER FOR HIVES.

Some Interesting Data on the Way Lumber is being Cut and Exported from this Country; the Giant Trees; California Redwood.

BY W. A. PRYAL.

The editorial remarks in GLEANINGS of May 15, concerning the destruction of Michigan's pine forests, were timely and to the point. More should be done by the State and Federal authorities to preserve our timber-trees from wanton destruction. In California, too, in the past, much valuable timber has been ruthlessly ruined. To-day government forest-rangers patrol our timber sections and thereby save them to quite an extent.

A writer in the April number of the *Review of Reviews* says: "At present there is ruthless destruction and waste going on in southern forests — destruction which, in years to come, will be wondered at. What were, a short time ago, virgin tracts of timber-land, now are blackened, desolate barrens, swept yearly by forest fires, producing nothing except scrub oak and gnarled little field pines, each year becoming hopelessly an unprofitable desert."

And what has been helping to denude the yellow-pine forests of the South and the white-pine forests of Michigan and other Northern States has been playing like havoc elsewhere in the United States. I have seen long stretches of mountain-sides in Santa Cruz Co., California, cleaned of pine and fir trees by forest fires. Only here and there would remain a blackened shaft to tell the tale that once on those grand slopes stately trees reared their tops to heaven. The California redwood fares better, for it is a sort of salamander among trees. While the fire-fiend is not so apt to do it any lasting harm, still the vandal woodman too often depredates the sacred precincts where it grows. Too oft, I say, its noble form is laid prone upon the hillside there to decay, all for the reason that the timber hunter wanted to get a few feet of the straight-grained wood from its trunk for shakes, shingles, railroad ties, or "split" rails. The portion that would make boards with but few knots is left to rot or burn.

The present consumption of timber for domestic use and for export trade in the United States is something astounding. Few persons have any adequate conception of the output of our lumber-mills. The writer above referred to states that "the output of Southern yellow-pine mills during 1902 was over 9,500,000,000 superficial feet . . . and that if this lumber were in the form of boards one inch thick and one foot wide, and these boards were put end to end, they would form a continuous belt running from the earth to the moon over seven times." Add to this the output from the remainder of the country, and what a vast quantity of lumber it must be! We are living too fast—yea, we are consuming the blessings given us. at a rate that may leave future generations to sit out in the cold and freeze to death.

The great lumber section of this country at the present time is in the Northwest—Washington, Oregon, and the northern portion of California, including a narrow strip extending down the Sierra Nevadas into Southern California. It is to this portion of the United States that the East is looking for its future supply of building material. It has caused more than one railroad magnate to extend his bands of steel to the Pacific, there to tap the pine forests. To-day railroads are being built into the redwood forests of California. Until recently the trade was satisfied with what would come to market by coasting vessels.

And now across the continent comes the question, "What shall we bee-keepers of the East make our hives of when our supply of white pine is exhausted?" To this Californians can answer, "We can give you the finest hive material in the world. We have two kinds of wood to offer you, but our redwood is the best of all." Yes, and it is to be had in abundance. As is pretty well known, this tree is to be found in Northern California along the coast. I have often thought it a shame that so fine a wood should be used for hive material. But why should we hesitate to convert it into hives when the Californian uses it for pigstys, hen-coops, watering-troughs, wine-vats—in short, every thing that he uses on the ranch, orchard, vineyard, mine, and factory is made out of this great utility wood. It is an easy wood to work, and it is still sold at a reasonable price. It forms the shingles that shelter the Californian from the elements above; it makes the mudsills that support the house as well as the rustic who encloses it about; and when the time comes for his worn-out remains to be put in their last resting-place, a redwood casket becomes his final home. What a generous wood! what a glorious and all-seeing Providence, to provide so liberally for the inhabitants of the Sunset Land! It would seem that it was no afterthought of the Creator in thus placing forests of such valuable wood in what may be said to be the last great land thrown open to civilized man. There, half a century ago, were discovered trees that were bigger before Adam was created than were the trees the average man sees in his daily walks, if we can place any reliance upon the speculations of scientists who say some specimens of the gigantic trees of California are more than six thousand years old. To-day these trees stand the oldest living wonders of God's handiwork. There may be "sermons in stones and music in running brooks," but grand indeed is the inspiration to be had as we stand in awe and view the majestic trees of California.

While the big trees (*Sequoia gigantea*) are capable of furnishing hive material, it is to their younger cousins, the redwoods (*S. sempervirens*), that we turn for our hive stuff. The former trees are to be found in a few small groves in the Sierra Nevada Mountains in the eastern portion of the State; the latter, in forests of greater or less extent from the Bay of Monterey northward along the coast to near the Oregon

THE TYPICAL REDWOOD FOREST-TREES OF CALIFORNIA.

line. A few of the smaller of these forests, especially in San Mateo, Alameda, and Contra Costa Counties, have already been deprived of their timber trees. Being near San Francisco, they were the first drawn upon for lumber. None of these small forests had many trees of remarkable size. In Santa Cruz Co. some large redwoods are to be found, and it will be many years before the woodsman fells the last one.

It is only a few years back since a grove of these trees was found in the Big Basin, sixteen miles north of Santa Cruz, toward San Francisco. The State has since acquired ownership of the Basin, and converted it into a public park. In this park are to be found some of the largest redwood trees in existence. The tree is a native of California, and the State wishes to preserve the finest grove, as it is also doing with the big trees already referred to.

Northward of the Pacific metropolis, in Sonoma, Mendocino, and Humboldt Counties, are dense forests of redwood. While thousands of fine trees have been ruthlessly slaughtered, there is yet a supply left that it will take years, may be a century or more, to remove. Those who have been over the coast country tell me that the forests so far have only been "fringed" in places. This is encouraging; yet the lumber-hunters may swarm into these forests and fell the trees in the most strenuous manner.

Ten years ago, when traveling in company with the late Mr. J. H. Martin (the lamented Rambler), several times for a good portion of a day we would traverse a redwood forest, the trees of which would sometimes be fully six feet in diameter. These trees would be far from the habitation of man, and further still from a railroad. The vastness of these forests can not be realized until one has been within the silent and cathedral-like expanse they form. They truly must have been "God's first temples." Ofttimes the trees are so tall and close together that the very light above is shut out. It is in these northern countries that the rainfall is greatest in California. Such a thing as a dry year is unknown. The county of Mendocino, which has boundless redwood forests, is one-half the size of Massachusetts. Then the forests of Humboldt are nearly as large. The city of Eureka owes its prosperity principally to its being a redwood center. I visited one of its lumber-mills, and was struck with wonder at the rapidity with which immense logs are converted into building material. Big band saws would cut through a log as fast as the truck or car could feed it to the saw, and the inch sheet or slab of wood, often from four to six feet across, would then be carried to another machine, which would trim it and then cut it into boards of the required widths. The demand for this wood during the past four or five years in our Californian cities, owing to the rapidly increasing population, has been great, and the price increased so high that the mills of Oregon are sending in a pine rustic which is being used as a substitute for redwood rustic, the pine being cheaper, and, as might be expected, far inferior to the other. To show how highly redwood is prized, it will suffice to state that carpenters and architects will not allow any thing but the former wood to be used on the front of a building, mainly because it is so durable and almost free from shrinkage. While Oregon pine forms the framework and floors of a California building, it is redwood that is used for shingles and the siding and millwork portions. Nothing else will do, as already stated.

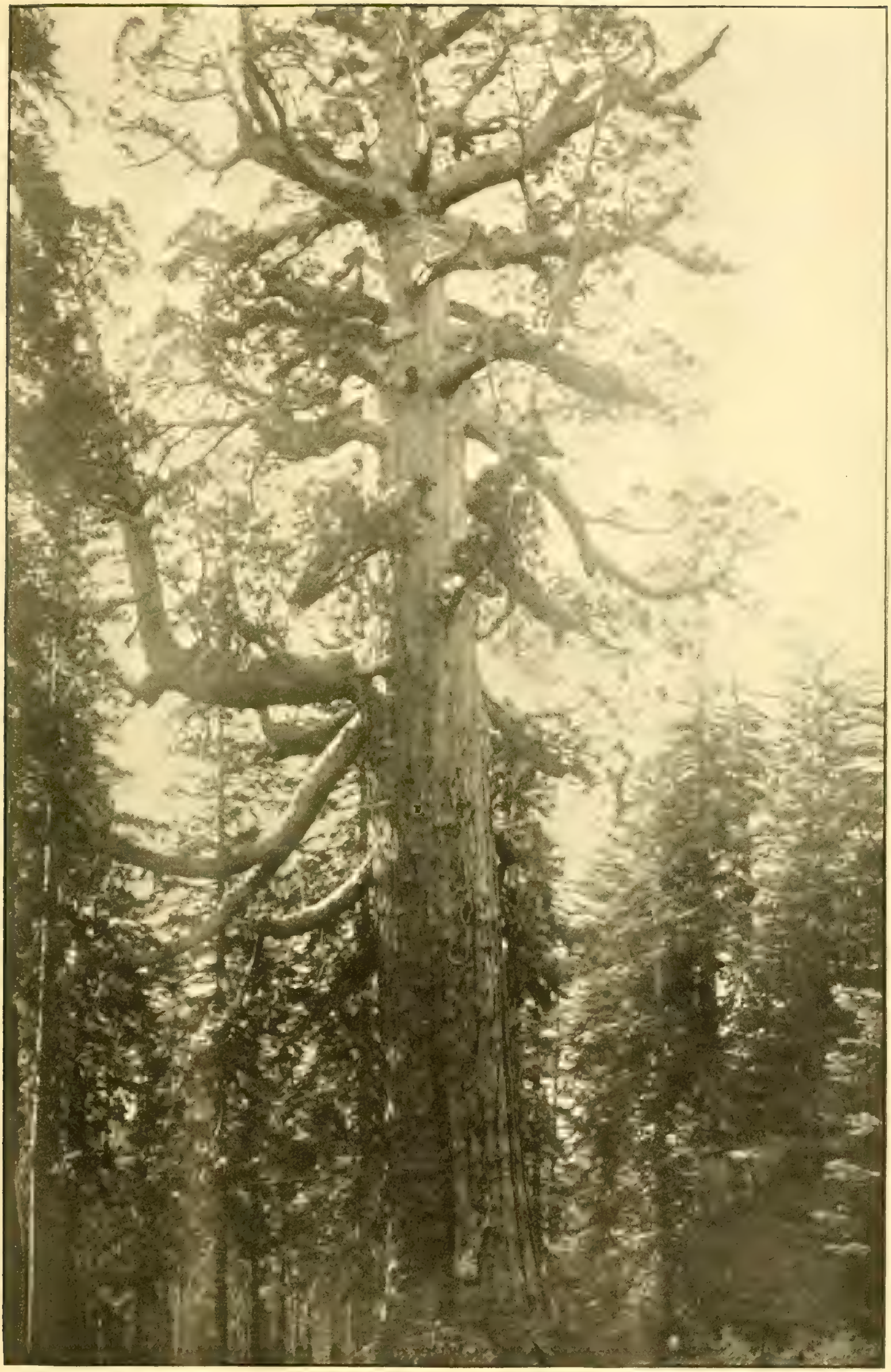
Until a few years ago the wood chopper cut the trees off high above the ground. This was owing to the butts being heavy, and incapable of floating to the mill. Now the "sinker" portion of the tree, which contains the choicest wood, is cut low, as modern means of transportation are used in taking the logs to their destination.

There is an organization in San Francisco called the Sequoia Club that has for its object the fostering of a taste for the use of the wood under consideration, for furniture and in the arts. It is doing good missionary work in this direction. The wood is susceptible of a high finish; and its grain, in the choice stump and root portions of the tree, are very pretty. The wood is highly prized in foreign countries, and forms the interior finish of many a nobleman's palace, to which it was carried at a neat cost.

The wood is devoid of any visible gum or pitch, and is noted for being slow of combustion. This is said to be the reason why no serious fires have occurred in California cities, though I doubt that, if a fire should get a good start when the season is at its driest, and the wind at a brisk pace, the redwood material would offer any great barrier to the fire-fiend. Yet the fact remains that, to burn a redwood stump out of the ground, is almost as hard a task as to get rid of a granite boulder in a cow pasture by similar means. Again, redwood is durable. It is the fence-post wood of California—in fact, it is the only wood that can be trusted near or in the ground. It does not rot rapidly, as do the pines.

A redwood's life is not ended by cutting the tree down. In due season, a crop of sprouts springs up around the stump, and in time several fine trees will be found growing where but one tree grew before. A fine forest of these young trees, sixty to one hundred feet high, is to be seen at Mill Valley, a fashionable suburb of San Francisco, in Marin Co. The parent forest was raided and destroyed some forty and more years ago.

For hives, as I have hitherto said, there is nothing better than this wood. Even the cheaper grades of the wood are serviceable. When the wood is seasoned for a few months in summer, there is no fear of any material shrinkage thereafter. I have used it for hives for thirty years, and the older ones are as good to day as they were when made.



"GRISZLY GIANT," 33 FEET IN DIAMETER.

Photographed by Taber, San Francisco, Cal

I have seen hives even older than mine that are in fine condition still. One thing about the wood is that it is easy to get wood of great widths so that covers and bottom-boards may be all in one piece — a thing much to be desired in hives. As the wood splits easily I do not think it preferable to use it in dovetailed hives. I do not remember seeing our box-factories thus using it, spruce being preferred. I would have redwood hives halved together.

A few years ago a grade of redwood lumber containing but few knots sold at from $12 to $14 per 1000 feet. This same stuff now brings $18 00. Selected wood, dressed on one side, such as is used for interior and outside finishing of buildings, sells for about $40, though the price has fluctuated considerably. A good hive material may be had for about $20 in the rough.

In making hives hereafter, I propose to have the covers at least 1½ inches thick. The lumber is cheap enough to allow of this; besides, the wood is less liable to warp, and, as it is necessarily heavier, it is not so apt to be blown off.

The day may not be far distant when we shall hear of Eastern hive factories making hives of our California redwood. When they do, a far better hive will be at the command of bee keepers than any they now use in the East. It will, in the first place, be more durable — not so liable to warp or split or check, and, what is of most importance, solid covers all of a single piece can be used. Why should not such covers be used, when trees may be seen in the Golden State that have a diameter of 33 feet, as is the case in that wonder of the vegetable kingdom, the "Grizzly Giant," of one of the big tree groves.

Any one visiting San Francisco should take a side trip to Mill Valley, in Marin Co., less than forty minutes' ride by steamboat and electric train, and see the handsome grove of redwoods in that pretty valley; or a trip may be made up to Cazadero among the big trees of Sonoma Co. It is among these woods that scenes like the big clean-cut redwoods shown in the large half-tone on page 751 are to be seen. Or a trip by way of Oakland over the Narrow Gauge route may be made to the big trees, about 80 miles south, in the Santa Cruz Mountains. One of the most picturesque trips in California is over the California Northwestern Railway into Mendocino Co., one of the garden spots of the State. In this county are to be found fine mountain and lumbering scenes.

[There is no doubt at all that redwood is a splendid timber for hives. When I was in California I investigated this question very thoroughly. While the timber would do excellently for hives, covers, and bottoms, from the information I could gather I was satisfied that it would not do for brood-frames and inside hive-fixtures. Redwood is very brittle, and a brood-frame made of it would split or break at the projecting ears. A manufacturer can not afford to make hives out of any lumber that will not at the same time be suitable for every part of the hive, except, perhaps, the sections; otherwise he would not be able to use up the refuse that would be too poor for the hives and this would make the hive cost considerably more. There is plenty of good white pine in Canada at the present time; and for the next ten or twenty years there will be enough left to take care of the hive interests; and, taking it all in all, I doubt very much whether redwood would ever be accepted as a satisfactory substitute.—Ed.]

PLANTING FOR HONEY.

Sainfoin as a Honey and Hay Producer.

BY ADRIAN GETAZ.

That it would not pay to use valuable land for honey-plants is now generally admitted, and such planting will not be considered here. Valuable crops, producing honey as well, might be considered; for instance, buckwheat. But there are only a few of that kind. One, however, deserves special mention because it is not sufficiently known and appreciated here. It is *sainfoin*. As hay it is unequaled, being superior to both alfalfa and red clover. It can be cut twice a year. It is a great honey-yielder. The honey is light amber, and similar to that of red clover. The best part of it is, it gives the best hay when cut just at the time the last blossoms are going out, thus securing a honey crop (or, rather, two, since it is cut twice), without interfering with the hay crop. It is a deep-rooted plant, and lasts several years. It is partial to limestone ground. If the land is compact, it must be subsoiled so as to let the roots reach a sufficient depth. On non-limestone ground a liberal application of lime should be made.

This plant is not a novelty, but has been in cultivation in Europe for a century and a half, and is as well thought of now as ever —perhaps more.

TREE PLANTING.

But there remain the streets or roadsides, many pieces of land too steep or too rocky for cultivation. In the prairie States, large areas of land are planted in trees to furnish the lumber needed. If we are to plant trees it is best to plant those furnishing a valuable quality of lumber, and those which produce nectar at the same time. I think it would be better to plant several kinds of trees rather than only one. The object is to obtain as long a honey season as possible, rather than a short but heavy flow.

In this latitude a succession could be obtained by beginning with the different kinds of maples for an early start. There are almost everywhere enough fruit trees to fill that period of their blossoming, so no provision need be made on that score. Immediately after comes the honey-locust; then a little later the poplar (tulip-tree, or whitewood). These two somewhat overlie each other. The tulip always yields a large amount of honey; but it is dark, and of a reddish color, though of a good taste.

This brings us to the end of May. Early in June comes the persimmon. The honey is of a golden color, and first-class in taste. This yield never fails; but the period of blossoming is short — from 10 to 15 days. After a few days, more or less according to the season, the sourwood begins. This gives us our best honey, almost water-white in color, very sweet, with just enough of the finest and most delicate aroma that can be imagined. The blossoming lasts from three to five weeks, but often the nectar fails — at least here in the valleys. In the mountain coves and hollows, where the land is rich, deep, and moist, the yield never fails, and is very abundant.

The basswood must be mentioned. It is found now only here and there, having been nearly all cut down for lumber. Its period of blossoming lasts some three weeks between persimmon and sourwood, overlying both.

Of the eucalyptus and other trees recently introduced in California I can not say any thing, from a lack of sufficient practical knowledge. For what I know, a large part of Australia enjoys (?) a pretty rough climate, and some of these trees and shrubs are likely hardy enough to stand the winters of a part, at least, of the eastern side of the Rocky Mountains.

A BIT OF FORESTRY.

Groves of trees have been extensively planted in the Western States. The cottonwood, owing to its rapid growth, has obtained the general preference.

Judging by the illustrations I have seen in GLEANINGS and other magazines it seems that the trees have been planted at the distance they were finally to occupy, just like planting an orchard of fruit-trees. That will not do. Trees thus planted throw out enormous lateral branches, and have only a short trunk, usually full of knots. When cut, the whole outfit is useless for any thing but firewood. Forest-trees should be planted close together, say two or three feet apart. Then, instead of growing laterally, they grow upward rapidly, having branches only at the top, and even these die out when still little as fast as others grow above them. When the trees are 12 or 15 feet high the first thinning takes place. The poles thus obtained have a sufficient value to pay for the work. Later a second and finally a third thinning take place. This last is when the trees are perhaps 4 to 6 inches in diameter. This leaves the remaining trees at the final distance they are to occupy. The distance at which the trees are to be maintained throughout their growth is, roughly speaking, about one sixth of their height, but varies with the different kinds, the climate, and nature of the soil.

A second mistake is planting an inferior quick-growing kind of timber alone. Such should always be mixed with valuable varieties. When the inferior timber finally comes off, there is left on the ground a half-grown crop of valuable timber, worth more later on than a second planting of inferior lumber could have been, notwithstanding its quicker growth.

PLANTS.

While the trees are growing, and even after they are grown, there is no use in leaving the ground under them naked. It might as well be planted or sown with something suitable for honey production. A great many plants, some with very beautiful flowers, could be used for that purpose. Owing to their ability to resist drouth, the sages and other California honey-plants deserve full investigation.

From a practical standpoint, it is probable that the white and yellow sweet clovers are the best known for that purpose. I would use both in order to have the flow extended as long as possible. The European books speak of a third kind (*Melilotus officinalis*), with a blue-purple blossom, and possessing some medical properties. They always recommend it as the kind to be sown for the benefit of the bees. It might be well to try it.

In a back number of the *Bee-keepers' Review* is a splendid illustration of the cucumber-plant. It is a climbing plant growing chiefly along the creeks, and climbing away up in the trees. It bears an immense number of blossoms, yielding nectar quite freely. A great many plants are called by that name. What the real plant spoken of there is, I don't know. Nothing like it grows here.

In Cuba and other tropical countries, another climbing honey-yielding plant is found—that is, the *aguinaldo*, or bellflower. The readers of this will smile when I say that this might be introduced here. But how many of them know that our common morning-glory is a tropical plant, which was first brought into gardens, then got loose, so to speak, and has spread everywhere? Furthermore, the morning-glory and the aguinaldo are very similar; and if one has been acclimatized, why not the other? We might try, anyhow.

Knoxville, Tenn.

[Sainfoin was considerably talked about as a honey-plant years ago, and our experiment stations have tested it more or less; but I believe it has never obtained much favor in the United States. As basswood timber is now rapidly advancing in value, I should recommend it, especially as it is such a rapid grower, before any of the other honey bearing trees. As aguinaldo has no value except for honey, I am sure it will not pay to undertake to introduce it in the United States, and I feel like cautioning bee-keepers, especially beginners, about undertaking to grow *any* plant for honey alone. All of the clovers are valuable aside from the honey they bear, and we can grow them by the acre or hundreds of acres without any fear that the project will be a failure. Our catalog of honey-plant seeds gives a pretty full list of the plants that may be safely grown for honey, because they have a market value for other purposes. —A. I. R.]

THE QUESTION OF THE SECOND MATING OF QUEENS.

BY FRANK BENTON, M. S.

(Apicultural Investigator, United States Department of Agriculture).

I did not state distinctly in my article entitled "Queens Mating Twice," published in GLEANINGS for April 15, 1904, page 385, that the queens whose records were there given did not lay any eggs between the first and second matings, yet I thought that matter was rather understood. However, in the number for June 1, page 551, Mr. W. M. Whitney questions this. Not only were no eggs laid previous to the second mating, but the queens, after their return from the first mating, with the drone appendages attached to their bodies, presented no other sign of having mated. That is to say, when these appendages had dried up and disappeared the normal size of the virgin queen was preserved until after the second mating, and no eggs were deposited. This argues that the first mating was wholly ineffective.

The question of whether a queen that has mated and begun laying normally can still mate again is quite another matter. I think, however, the fact now well established that a queen does meet the drone and copulate a second time is an indication which we are warranted in taking as pointing to a possibility of such an occurrence after the effect of the first mating has disappeared, or even the bare possibility that a queen taking a flight from the hive during an interval when her body is not heavy with eggs, might copulate a second time. I have no positive evidence of this, but there are some things which occur which point to the possibility of it. All will recollect that the point has often been mentioned in the bee-journals of the frequent disappearance from the hive of clipped queens, it having been claimed that they were more likely to be replaced than those which had not been clipped. May it not be that they leave the hive for the purpose of mating a second time? Again, many complaints have been made that queens which experienced breeders had sent out as producing bees of pure blood had really been mismated. I can not now recall the year, nor do I think any mention has been made in print of a little occurrence dating back to the time when I was located in Carniola, Austria, breeding queens of the Carniolan race, but I have a very distinct recollection that several queens were sent to the A. I. Root Company, from my apiary, and could have been no other than pure Carniolans, since there were no other bees in the province. Some months later the statement was made in a personal letter from the A. I. Root firm, that these queens, which had apparently first produced good Carniolans, were breeding bees showing Italian blood. Mrs. Benton suggested that, by the following year, very likely they might produce pure Carniolans again! Observations of a similar character have cropped out in apiarian literature repeatedly for many years back. The question here arises, Might not this also be another case of second mating?

Whatever the text-books may say to the contrary, there is one point on which I am quite decided; namely: That queens which have mated and begun laying do, in after-life, leave the hive and fly about when unaccompanied by a swarm, and, in the latter case, are disposed to return, and nearly always do return. But should the hive contain a small nucleus only, all of the bees in the excitement sometimes accompany the queen, and then they are likely to cluster as a natural swarm. All will recollect the fact that small nuclei sometimes desert their hives, even though all the conditions seem to be favorable for their remaining. Of course, these are exceptional cases, yet they show possibilities. It will generally be found to occur after the queen has got the combs well stocked with brood, so that, being in a very small hive and very prolific, she is obliged to check her laying, and finally, being light-bodied, seems to take pleasure in outside excursions. The bees, noting her excitement, go out and probably accompany her accidentally, as it were, leaving brood, honey, and a well-ventilated nucleus-hive behind. Have we not here another indication of the possibility of second mating, each one of which might be effective for a time? For my own part I am prepared to believe in the strong possibility of its occurrence under exceptional circumstances—rarely, of course, but that it *may* on occasion occur. I do not believe, however, that a queen failing, because of age, to lay fecundated eggs, would mate again.

Bureau of Entomology, July 12.

[The following may be a case in point.—Ed.]

DAUGHTERS FROM A PURE ITALIAN QUEEN PRODUCING BLACK BEES.

I have an imported queen which I used last year as a breeder, and nearly all queens reared from her produced bees as finely marked as I ever saw. During the honey-flow this season those queens proved to be so prolific, and the bees from them were such hustlers, I concluded to stock most of my apiary from her (the imported one). I set to work, and by the time I got some 25 to laying, the bees from the first ones had begun to hatch. As I had nothing but Italians, and there are very few black bees in my vicinity, my apiary being in a roar with Italian drones, right when these queens were mating, of course I expected my queens to be purely mated. I examined the first that began to hatch, and, to my surprise, found black bees in every nucleus. I then decided to wait until the bees from the other queens hatched, but, alas! they were just like the others—every queen produces both kinds of bees, while some of them produce bees nearly all three-banded; others produce nearly all blacks. Some may say the imported queen died and the bees reared another that is not pure; but that is not the case, for the tip of one wing was cut off, and it is so yet. I should be thankful for an explanation of the above.

D. P. Bufkin.

Stringer, Miss., July 12.

[Mr. Benton's suggestions and opinions should have some weight. We have had quite a number of reports where the stock *seemed* to change, as indicated in the item above. In view of what Mr. Benton has to say, and the opinion already offered by W. Z. Hutchinson, I am open to conviction, although I have put myself on record as not crediting second mating after laying. Let the evidence come in, whatever it may be.—Ed.]

A RETROSPECTIVE GLANCE.

How the Late Charles Dadant has been Vindicated in France.

TRANSLATED FROM L'APICULTEUR BY DR. C. C. MILLER.

[It is, perhaps, not generally known by American bee-keepers that Mr. Charles Dadant was practically the introducer of the movable frame in France, and, in fact, over a large part of the continent of Europe. His progressive ideas were accepted by all French journals save one. That journal, *L'Apiculteur*, opposed him most violently, especially during the lifetime of its former editor, Mr. Hamet. Mr. Dadant knew he was right—knew that the movable-frame hive was bound to supplant the old box hive or straw skep; and he persisted in advocating these newer ideas. Like Galileo of old, he would not recant, but persisted in trying to make the world see and know what he knew. As our respected friend drew his inspiration from Langstroth and modern bee-keeping as it is known here in America, it may be somewhat interesting to our readers to see that the last opposing prop has been knocked out, and all France has come to recognize the value of the system first brought to the world by father Langstroth; but it took a Dadant to bring it to the knowledge of the French people. That he was finally vindicated in the very journal that so violently opposed him can not be other than a source of great satisfaction to Mr. C. P. Dadant, who writes the article defending the position maintained so valiantly by his father. It is to be regretted that this vindication could not have been during the life of the elder Dadant. The following introductory note from the editor of *L'Apiculteur* is self-explanatory.—Ed.]

[It is our good fortune to be able to present to our readers an article from one of the most renowned apicultural writers, Mr. C. P. Dadant, who kindly assures us of his collaboration. The movable-frame hive, which alone he advocates, was, at its debut, violently opposed in the *Apiculteur;* but what progress has not been opposed at its birth? Besides, is not some conflict necessary to make us appreciate that which is new?

"To conquer without peril, we triumph without glory."

At all events, this alliance of the descendants and successors of former adversaries is a sign of the times; we doubt not it will rejoice the hearts of French bee-keepers who honor us with a perusal.—*Editor Apiculteur.*]

Mr. Editor:—In accepting to-day the title of corresponding member and collaborator, so graciously offered by the Society, and by the oldest and best-established of the French apicultural journals, I desire to correct the impression that may be left by the obituary notice of the senior Dadant, published on the first page of the *Apiculteur* for September, 1902. Of the twenty or thirty bee-journals that have up to this time mentioned his death, the *Apiculteur* is the only one that has found any words of criticism upon his works. I believe that, if the author of this criticism had had before his eyes the exact facts he would have expressed different views.

Among the subscribers of the *Apiculteur*, very few, without doubt, read it thirty-five years ago. Only those who did can recall the controversy over the movable-frame system. Let them read again, if they have kept them, the numbers of the *Apiculteur* from 1869 to 1875 and they will see the efforts made by my father to be heard in the cause of apicultural progress, and the manner in which he was received. It is not, then, astonishing that there was bitterness of heart upon this subject. Elected as a member of the Central Society, his name was arbitrarily erased from the register because he insisted on maintaining positive views upon apicultural progress. But it is a mistake to believe that he disliked what came from France. He was a Frenchman at heart as well as by birth; and they who attacked France were sure to find in him an adversary as fierce for his native land as he was for the cause of progress.

For thirty years he kept up the gratuitous battle for progress, in one journal or another; but at the last, especially in the *Revue Internationale*, a journal which has only lately ceased publication, after twenty-five years of conflicts crowned with success. Not only did he love discussion, but he sought it, and was never more happy than when he found an error to combat. Certainly that injures him only with his adversaries. A French writer eulogizing Descartes said, "The last crime to be pardoned is that of proclaiming new truths." But it is also the best means of compelling progress.

Student and collaborator of my father, I was eighteen years old when the conflict began for him. I am now fifty-three. The reader will kindly permit me to rehearse the past. I do not seek controversy; controversy is not to my taste. I only wish to mention the progress made, the establishment of the movable-comb hive and extractor upon a grand scale, with their results. In this progress many have participated, and day by day the progress is more rapid.

That which the progressive apiculturist sought and found was the means whereby he might keep his bees entirely under his hand, with the ability to direct them in every thing. To aid feeble colonies; to take honey from a colony too bounteously supplied and give to one which was lacking; to replace queens insufficiently fecundated, or those which died by accident; to improve the stock by choosing the best breeders; to diminish the production of drones while increasing that of workers; to control swarming to a certain degree; to prevent the moth by reducing the combs in weak colonies to the number the bees could cover; to detect foul brood at the first sign of the malady—in fine, to increase the production of honey of the first quality by all the most practical means, that was the task. For all these operations a hive was needed that would give facilities for examining every nook and corner of the combs — a hive that could be taken apart like a puppet-show. Such is the movable-comb hive. Whatever the name or form of the hive, Sagot, Voirnot, De Layens, etc., one sole condition *sine qua non* is that the combs shall be separated from the walls by a space large enough for the passage of a bee, at sides, bottom, and between the stories. Aside from that, opinions may be divided as to the height, width, and length of the body of the hive and the super, the manner of suspending the frames, and the direction the frames shall run; but the base of the progressive system is the movableness of the combs at the will of the operator. All the other conditions are secondary.

The objection often made to the high price of movable-frame hives has been proved of no consideration by those who know what advantage this expense gives in results. A hive well cared for, and protected from the inclemency of the weather, even by the roughest roof, will last at least forty years, making thus an expense the bee-keeper will hardly have to bear more than once; and each year he will draw in return compensations that will pay, many times over, the interest of the money and the liquidation of the outlay. The facility with which the production of an overplus of drones may be prevented in a large apiary will of itself be an appreciable economy. He who holds to the old system solely for the sake of economy finds himself in the position of the farmer who continues to buy cradles and flails under the pretext that harvesting and thrashing machines are too expensive. Yet the farmer might have the excuse that his field is too small or too stony for the use of the more perfect machines, while there is not an apiary, however small, which can not accommodate itself to hives that are practical and economical because of the manipulations which these hives permit. On the contrary, the owner of a small apiary will take more pains, and will have greater results from the very fact of the limited number which permits him to do all the work himself in the best manner.

The utility of the centrifugal extractor, which permits the taking of the honey without destroying the combs, and without having the honey mixed with brood and pollen, is such that the hive and extractor together round out one complete whole. For thirty-seven years we have each year employed regularly the extractor upon several hundred colonies of bees. Living in a country where comb honey brings fifty per cent more than extracted honey, we have, notwithstanding, found a much greater profit in extracted than in section honey, because of the great economy resulting from the saving of building storage combs one year after another, especially in mediocre seasons. Southern California, Arizona, Utah, all honey regions par excellence, are devoted to the production of extracted honey on a grand scale. In certain mountainous regions of California, where all the hills are covered with sage, extracted honey is the chief product; and it is not uncommon to see the village grocer buy honey by the hundred barrels to send to the populous centers. Box hives with fixed combs are almost unknown, and it is under serious consideration to prohibit their use by law, because with such hives the first appearance of foul brood can not be discovered, as it can with hives which easily allow the removal of the combs for inspection. In a warm country densely occupied with bees, the prevention of this malady is a vital question; for if it once gets a foothold it will make very great ravages.

An idea of the extensive use of the extractor in the United States may be had from the fact that the establishment of The A. I. Root Co. alone, in the year 1903, made and sold 1171 honey-extractors, and they say they have sold more than twenty thousand since the beginning of their business. I have this from Mr. Calvert, the secretary of the company.

As to hives, in the United States box hives are no longer in use except among owners of bees who neglect this branch of agricultural industry. In Europe, where liquid honey is much more esteemed than comb honey, the question of the extractor has also made its way, and the great production belongs henceforth to the new apiculture. It is true that one still sees some opposition. This is not surprising; but let him who doubts try it and he will soon be enabled to judge for himself.

Progress is always slow, but nowhere can one doubt its future. Even Egypt sees its old monuments surrounded by the new civilization The old temples, historic and useless, of the isle of Philæ, do they not find themselves threatened with inundation by the modern and utilitarian embankments of the Nile at Assouan? When ancient Egypt herself yields to progress, we may have confidence in the future.

Hamilton, Ill. C. P. Dadant.

Heads of Grain
from different fields

CUTTING UP CANDIED HONEY; LEARNING HOW TO DO IT BY VISITING SOAP-FACTORIES.

If you want to know how to cut up candied honey into square portions of any given weight with the simplest of apparatus, I would suggest you visit one or two soap-factories near by, and in a few minutes you will get the hang of the whole matter — especially if you are shown the method of cutting up blocks of toilet soaps. I could give you details, but ocular demonstration at your own door would be so much better I refrain; but I would suggest you visit more than one factory, as no two cut up their blocks of soap in exactly the same way. The methods of some are too elaborate for the average bee-keeper; others, again, have a system that is simplicity itself.

The crystallizing of the honey in cans that have to be cut up and destroyed is a very crude method. Why not solidify it in rectangular molds with detachable sides and ends, said molds to hold from 100 to 1000 lbs., which should be lined with *washed* calico to prevent honey sticking to the sides. Ask the soap people to show you their soap-frames, and this point will at once be clear to you.

I presume that, among your many subscribers, you have some in the soap trade; but don't be disappointed if they should prove niggardly in giving their information — at least such has been my experience during the 40 years I have been among them. The honey business stands out very conspicuous in the freedom with which, on the whole, its members are ready to *give* freely of the best of their knowledge. Should you fail to get the details you require I will see what I can do from this distance. WM. C. BROWN.

Dunedin, New Zeal., June 7.

[Your suggestion to visit a soap-factory is a good one. I will make an effort to get into one at the very earliest opportunity. I think we shall have no difficulty if we can satisfy them that it is honey we want to cut and not soap.

The plan of taking honey out of a square can may, perhaps, seem a little crude, and wasteful of the can itself; but honey may not candy for several weeks to be solid; and a great part of the honey now being shipped comes in 60-lb. square cans; and if it is candied it must be remelted, run out of the cans, then put where it will granulate again in bricks or bags as the case may be. This will consume a great deal of time, and more than offset the value of the can. If the honey is to be recandied at all it should be poured into little vats (not large ones) holding chunks of just the right size to retail. There will be no use of having it candy in a large vat and then cutting it with a wire unless one could not determine in advance what size of bricks he would require for his trade.—ED.]

THE SWARTHMORE METHOD OF QUEEN-REARING IN ENGLAND.

At the 65th annual exhibition of the Royal Agricultural Society of England, held at Park Royal, London, during the week ending June 25, in the bee department, class 411, for any appliances connected with bee-keeping, the first prize was awarded to James Lee and Sons, of Highbury, London, for a complete outfit in full work, showing the Swarthmore system of queen-rearing. The judges in this department were Thos. W. Cowan and the Rev. Mr. Evans.

The *British Bee Journal*, in the report of the show, gives the following honorable mention: "In class 411, Messrs. Lee obtained first prize for a very interesting exhibition of a Swarthmore outfit for queen-rearing in active operation. Live cells were being worked out and larvæ fed, and the whole process was practically demonstrated from the commencement, ending with two little nuclei containing fertilized queens."

I understand that Messrs. Lee have been appointed Mr. E. L. Pratt's agents in England for the sale of the Swarthmore queen-rearing outfits, and for his golden-all-over queens. They were supplied with the appliances, and instructions for using them, in May, and from the report in the *British Bee Journal* they appear to have succeeded remarkably well in their first attempt in rearing queens and getting them mated in small nucleus boxes.

Mr. Thos. W. Cowan, one of the judges, is a thoroughly practical and scientific bee-keeper, is well known to you, Mr. Editor, as the inventor of the Cowan extractor you manufacture, also to Prof. Cook and many of the leading apiculturists in the United States and in Europe. An award at an important exhibition made by a judge of Mr. Cowan's standing goes far to substantiate the practicability of the plan, and an improvement on older methods.

Philadelphia, Pa. JOHN M. HOOKER.

TWO QUEENS IN A CELL AGAIN.

In a recent number of GLEANINGS the editor asks for reports from any one who may have found two queens in a cell. Three years ago I found just that condition in one of my colonies. The queen-cell was about two thirds as long as my little finger. On cutting it open I found two queens well developed. They probably would have emerged within two days.

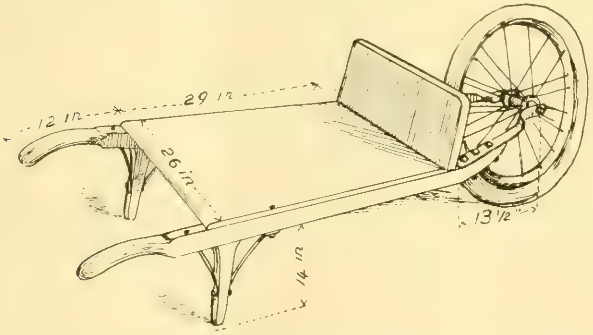
WM. M. WHITNEY.

Lake Geneva, Wis.

A WHEELBARROW WITH PNEUMATIC TIRES.

Reading the writings of Mr. Doolittle, p. 327, leads me to write of an improvement in moving bees, combs, frames of wired foundation, and things fragile, needing freedom from jar in moving, which I find very satisfactory, and have intended giving before. It is an improvement and not an original invention, for it is but a wheelbarrow. Instead of a heavy iron-tired wheel in front, bumping and jarring along, we have a pneumatic-tired bicycle-wheel hung upon springs, which takes out that little nervous jolt so irritating to bees, and which breaks down comb and foundation in cool weather. A wheelbarrow is too common a thing to need details of construction; but as they must be made different for a bicycle-wheel, perhaps I had better give the dimensions which I used.

The wheel was a 28-inch one. This is quite a large barrow-wheel, but it bears out all you say on page 1013, 1903, in regard to small wheels. For a frame get a piece of plank, the best timber you can get. I used white oak, well seasoned, 1½ inches thick. Rip out two side-pieces 1⅞ inches wide (if you want crooked handles don't forget to allow), and dress up. For springs use a light flat spring, crooked and twisted as shown in the drawing.



Take your wheel and frame to the best blacksmith you have, for it is quite a fussy job to get the wheel to line up true. For me I should prefer to have the springs bolted on top, as suggested in the drawing, instead of bottom, as is usually done, for it lowers the platform, making it just 14 inches from the ground. While it will not hold up as much as some wheelbarrows, it will easily carry two colonies, and I have carried three. I tested the wheel I used to 170 pounds, and, counting the amount lifted by the handles, I think I am safe in saying they will carry 250. Be sure to use good timber for side pieces, for I have given light dimensions. G. A. Bostwick.

Verbank Village, N. Y.

[This is one of the best ideas that has been offered for a long time in these columns. Those of us who have had any thing to do with automobiles or bicycles know that pneumatic tires have a resilience and a smoothness of running that is equaled by nothing else. A solid iron tire can not be compared to it in the least, even though the wheels of such vehicles have good easy springs. A pneumatic tire will run over small obstructions without producing a tremor to the vehicle it is carrying—something an iron-tired vehicle can not do. I do not know but we ought to furnish bee-keepers with wheelbarrows having pneumatic tires, at an extra price. I wonder if there would be a demand for them. At all events, one can go to the nearest bicycle-repair shop and get a bicycle-wheel, hub and all, probably, for three or four dollars. By making special springs or forks, if they are not suitable on the regular wheelbarrow, the pneumatic-tired wheel can be substituted very easily. In moving crates of comb honey over ground none too smooth, especially crates containing combs attached on only two or three sides, the pneumatic-tired wheelbarrow would be far superior to any other carrier.—Ed.]

HIVING BACK SWARMS BY SHAKING.

In your issue of June 15, p. 600, Mr. Hand speaks of hiving back swarms by shaking them off in front of the old hive after they have been hived in another hive for 48 hours. I should like to know if this method will work satisfactorily with first swarms of the season. I notice he speaks of its being July when he tried this plan, rather late in the season, and possibly the bees had swarmed earlier in the season, and these were second or after swarms; also, what is done with the queen that is with the swarm that is sent back into the hive? Is she killed or allowed to return with the swarm? A. T. Zimmerman.

Washta, Ia., June 25.

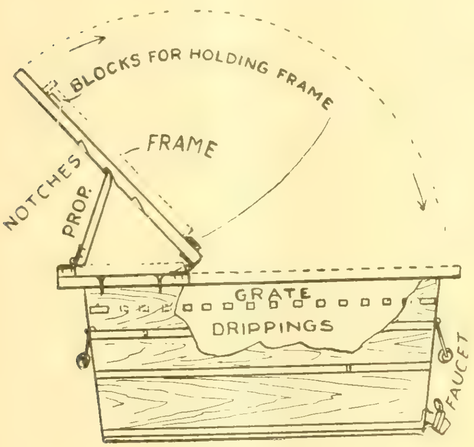
[This was forwarded to Mr. Hand, who replies:]

Replying to the above inquiry, will say the swarms mentioned were first swarms, and the queens were allowed to run in with the bees—simply hive the swarm by the side of the parent colony, and after 48 hours shake the bees out of the new hive in front of the parent hive from which they first issued. Swarms so treated will stay a week or more, and work equal to a first swarm. I do not claim this as a sure prevention of increase in all locations, but especially recommend it for swarms that issue late in the season, leaving partly filled sections on the parent colony which could not be used on the new hive. I am using a modification of this system the present season, with splendid success. J. E. Hand.

Birmingham, O.

ANOTHER TUB FOR UNCAPPING; HOW TO MAKE, ETC.

Ever since I saw and read about the Starkey uncapping-frame holder, Jan. 15, I have been thinking of giving you a description of the one that I use, for I think it beats any other that I have ever seen. To make it, take a common new wash-tub; put a faucet in near the bottom to draw off the drippings. Make a frame of slats about one inch by half an inch thick, the cross-pieces about one inch thick so as to give at least an inch of space for honey that has dripped through. The frame is for cappings to fall on to. Next get one wide board that will cover more than half the top of the tub, then a narrower one. Cut them round and large enough so that the two side by side will more than cover the top of the tub. Screw the narrowest one on to the top of the tub; call that the back side of the tub, for you want your faucet in the front. Attach the wide top board to the other top board, where the two boards come together, with hinges. Take another hinge and attach a short stick to the top of the back top board. Make notches in the top of the wide top board for the prop to catch in. When you have a prop just the right length to let the wide board lean back at the right slope to suit you, lay an L. frame on the slanting board which is up when laid back against the prop. Now you can see just where to nail or screw on a couple of blocks to hang the frame on. The slanting board serves as a lid to the tub when not in use, and as a rest to hang a frame of honey on when opened back.



When all is ready I take my honey knife in my right hand, start at the top right-hand corner; run across to the other end of top bar down across the end; then cut up and down as I come back to where I started, and one side is very nearly all off; the cappings drop on to the grate in the tub, and are draining while I am working. Then I draw off a bucket occasionally from the tub; and when the tub gets full of cappings I have a large barrel handy that is coated on the inside with paraffine. Into this I dump the cappings until I have spare time to render the wax out. You can tell what size of tub you want by measuring with the frame that you want to use, so that all the drippings will fall into the tub. Of course, when one side is uncapped the frame has to be turned over; but I would rather do that than to have something that I would have to hold on to with my left hand all the time. J. M. WOODHOUSE.

Durango, Iowa, March 28.

BROOD-FRAMES WITH THINNER TOP-BARS. THE MATING OF QUEENS; ARE THEY FOLLOWED BY SWARMS OF DRONES?

If you can make brood-frames as mentioned in your footnote to Mr. S. T. Pettit's article, p. 645, by all means let's have them. I, for one, do not like the ⅞ square top-bar. A bar ½ inch thick will never sag; then they are lighter, and ought to be cheaper, and perhaps freight would be a little less, all of which counts. I should like a little information. I find (through bee literature) that there is an idea among bee-keepers that a whole crowd of drones gets after a queen when she takes her wedding flight. Why is this? I had always supposed she mated with the first one she happened to meet. If there is a race after her, the drones from black bees must be decidedly swifter than those from the Italians, judging from the number of mismated queens we have.

My bees are doing the best this year of any since I have been keeping them. Some have almost finished their second super, and cotton is just beginning to yield. Never before have I got any thing only from cotton. L. C. ROUSSEAU.

Waxahachie, Tex., July 12.

[There have been many reports to show that drones fly in schools during the middle of the day. When a queen sallies forth they are attracted at once, and then there is a race — the survival of the fittest — with the result that the strongest is the successful suitor. But I should question very much whether the black drones were the stronger. There are probably more of them in your vicinity than you suppose, notwithstanding the Italian drones are so plentiful in your yard.—ED.]

DISCOURAGING FOR CANADA.

In Canada the winter has been the most disastrous known to bee keepers during my 24 years of bee-keeping. Almost without exception bees wintered outside came through in a very much weakened condition, and with the death of many stocks Even those wintered in the cellar did not fare as well as usual, owing to low outside temperature; the cellar temperature was lower. The bees consumed more honey

On the summer stands, owing to the cold

spring and greater amount of stores consumed in winter, many more starved; queenless colonies perished for want of queens unobtainable from the South this year, where queen-breeders were battling with adverse weather. Poorly wintered colonies which, under favorable conditions, might have pulled through, perished. Our own bees came through pretty well, but gathered the first pollen April 30, over a month later than usual. From Nova Scotia, and New Brunswick to Ontario, come reports of small apiaries wiped out—yes, one with 165 colonies set out has only 4 living. In the Anapalis Valley a leading bee-keeper in New Brunswick writes me, "There is scarcely a bee left." Fully 70 per cent of the bees in Canada perished, and four-fifths of these are not in shape for the honey-flow, which, owing to weather, has so far been of such a nature that only strong colonies have done any thing.

Basswood promises well — lots of buds; there has not been much swarming; and at present writing, July 6, and clover nearly over, there is not likely to be much increase, so that, after counting winter losses, there are likely to be no more but fewer bees in the country when the honey season begins, 1905, than at the same time in 1904. Commission houses houses are already writing out to secure honey before the true condition of things is known.

R. F. Holtermann.

Brantford, Ont., July 6.

MAKING SWARMS DESTROY CELLS.

I see your request in Gleanings for June 15, for further information in regard to the claim made by Chas. Dadant, as quoted by Mr. Hand, that swarms returned to the parent hive after 48 hours would destroy queen-cells and swarm no more. I am sorry to say that it can not be relied upon here; but in your northern latitude I think it might. However, I have been using a method that accomplishes the same result, but with a trifle more labor. Briefly stated it is this: I use shallow hives tiered up three and four stories high; and when a swarm comes off I hive it in one shallow body, and place an empty body under it, on the old stand. In six days I separate the brood chamber through the center and kill all the cells but one. At the same time I kill the old queen and return the swarm, placing the extra super of newly drawn combs on top if needed; but if not needed I use it on a weaker colony, or to make increase. With a young queen and plenty of room, very few colonies will ever think about swarming again that season.

WHEN TO MAKE BRUSHED SWARMS.

I indorse what Mr. Hand says about Doolittle's advice to make brushed swarms two weeks before the honey-flow begins. Such advice may do for mere dividing, as Mr. Doolittle practices; but for true brushed swarming, never. The flow must be at hand, and wax secretion already started. I repeat that, in this locality, it is entirely immaterial whether or not cells are started. The thing of most importance is to have a powerful force of bees and a good strong flow on hand, with no waiting. Given these, and brushed swarming will be a full success. Without them it must be a failure, and no amount of other coddling will prevent it. I make these brushed swarms at any time when there is a honey-flow on, and for section honey they are unequaled by any other preparation of a colony for that purpose.

IN FAVOR OF THIN TOP-BARS.

Mr. Pettit's conclusions are identical with my own respecting thin top bars. As you know, I use ⅜, and have never wanted them thicker. Burr or brace combs are very unusual in my yards, and I think there are other advantages. The queens pass them more readily in three and four story hives; and as I never try to confine them to a certain part of the hive, this is of much importance to me.

Vigo, Tex. J. E. Chambers.

ALFALFA IN CUBA; SOMETHING ABOUT TURKEYS.

You say you would be glad to know if alfalfa succeeds in Cuba. Last year I sowed a small patch—a peck of seed, I believe. In three weeks from the sowing it was just 6 inches high, and as fine a stand as could be asked for. Then the turkeys fell on it and it went out of sight. We raised 500, but I am selling them all off as fast as I can, as I will close them all out before sowing more alfalfa. Next time you come to Cuba I hope to show you a patch of alfalfa. I read somewhere that it would do well in any soil that contains lime. In that case Cuba fills the bill.

As you know, our honey season this year has been a failure; with the loss of bees in Cuba and the United States, and the rise in price of sugar, honey ought to bring better prices next year.

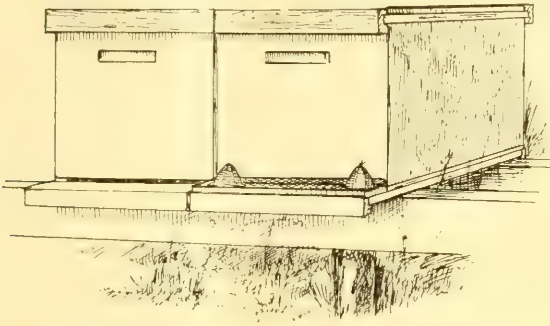
C. F. Hochstein.

Punta Brava, Cuba, May 20.

[Why, friend H., you have set me in the fever to go to Cuba and raise turkeys. If I understand you, the turkeys will do all the haying and harvesting themselves; and as alfalfa would grow every day in the year in Cuba, and keep on doing so indefinitely, all you need to do is to make a plantation big enough so your flock of turkeys would not eat it too close. The alfalfa would grow, you see, and the turkeys would grow too, and the owner would have nothing to do with the matter of feeding his flock. If I am correct, there is a big market for every thing in the poultry line in Cuba. Now, with that nice little girl of yours to help (or some other woman *equally smart*), it seems to me growing turkeys in Cuba would be about the nicest business in the world. But what is the reason that, in all these years it has been settled, nobody has discovered the possibilities of alfalfa in Cuba? Is it because your ranch on the mountain-side, with that unfailing spring, is an extra choice locality?—A. I. R.]

BEE-ESCAPE FOR STRENGTHENING SWARMS.

I send a picture of a bee-escape which I used last summer. It is a perfect success for the purpose for which I made it. It is 14 inches long by 2 wide by ⅜ high. Three sides are of wood, ⅜×⅞, with the top covered with screen wire. In each end I cut a hole an inch square. I then made a wire one by forming it over the end of a square piece of wood a few inches long, having one end sharpened in the shape of a pyramid.



After making a ⅜ hole in the apex of the cone, and while it is on the stick, I turn up the four corners so that they will fit on a flat surface. I then fasten it over the hole that I have made in the screen I have made on the frame; then I nail a light strip of wood on top of the screen that goes next to the hive. I then put two small sharp nails through the frame so that I can press them into the alighting-board far enough to hold the escape in place.

When I have a swarm I hive it and put it on the stand by the side of the hive it came from, and so close that the two hives touch. I then put the escape in front of the hive from which they came, and in so doing every bee that is old enough to work in the field will come out; and when they come back they will go into the new swarm, thereby getting the entire working force into the new hive.

The first day after hiving I transfer the comb-honey super, which is partially filled, to the new hive, and let the old hive without any super stand in its place from three to five days, when I take it to a new locality. All of the bees in it are young, and will not be lost by their removal. The results are, there is no need of cutting queen-cells, for the queens will fight it out among themselves on the sixth or seventh day. There are no after-swarms. The super partly filled is filled in less time, and better, than if left on the old hive. Before I tried it I was afraid so many bees would come out that they would leave the colony so weak they could not keep the brood warm; but I have had no trouble in that line. With the swarm-catcher that I have previously described and used in connection with the escape, I see no need of clipping the queen's wings or cutting out queen-cells. I intended to experiment with the escape this season by putting the old hive on top of the new swarm the fifth day, with some of the queen-cells cut and some uncut, leaving it 21 days, or until the bees were all unhatched, and then extracting it. In that way the bees would have accomplished their desire to swarm; would be in a better working mood after swarming, and would have the entire force of the colony. That was my idea of preventing increase, and at the same time not discourage the bees by preventing them from swarming.

But I am prevented from carrying out the experiment by the adverse conditions prevailing in this section of California on account of an extremely light rainfall. This is the time of year we should be in the midst of our first honey-flow; but instead there are hundreds (and I believe thousands) of full colonies starving at the present time. I have just fed mine 400 lbs. of sugar, so I shall be very much interested if some one would take up the experiment of keeping down the increase in the way I have mentioned, and report his success or failure. J. M. MACK.

San Diego, Cal.

A FINE QUEEN TRADE BROKEN UP BY FOUL BROOD.

It will, perhaps, interest you to know that foul brood has broken out in my home yard to such an extent that it would be ruinous to me and dangerous to customers, in my opinion, to continue queen-rearing on a commercial scale. One week ago all stocks were considered sound. The "genuine article" has been found in five colonies and one nucleus, and it is confidently expected in others. The contagion must have come from nearly three miles away, possibly six miles, as there are no bees closer than the former lot. Of course, that means extra work in the honey-producing yards, which means something to a man who is not strong. But I have met many difficulties which have scared me worse. An entire change of management will, of course, be necessary.

While surrendering the queen-trade it is with the belief that I held it down longer than any one else who ever advertised queens on the Pacific coast. Many pleasant acquaintances have been formed and older ones strengthened, which makes life brighter and broader. The value of good queens has never appeared with more force to me than now, and I feel able to compete with any one in producing a superior grade. The last three or four years have been of much educational value to me. All queens will now be clipped as soon as they are found laying, and no one will have reason to object.

Perhaps you would be pleased to know about our season's honey crop. So should we. Nearly all of my honey last year was stored in August, September, and October.

Modesto, Cal. W. A. H. GILSTRAP.

MILK PAINT ALABASTINE NOT SUITABLE.

Referring to query on page 608, June 15, concerning alabastine as a hive paint, I used some and was sorry I did. Perhaps I got the indoor kind. I shall try next time a "milk paint" given in April *World's Work*, quoted from *Scientific American;* viz., 1 gallon skim or butter milk (whole milk is better), to 3 pounds Portland cement. Color to suit. Keep well stirred while applying, and use on day of mixing. The alabastine I used peeled off like whitewash. C. G. DICKSON.

Kensington, Md., July 7.

SHOOK SWARMING; REDUCING THE LABOR OF HUNTING FOR CELLS.

In working outyards on the shook swarm plan, the big item of labor is going through each hive every week to look for queen-cells. This labor may be greatly reduced by placing a comb in the center of the brood nest, said comb having an opening in its center formed by means of two pieces, ⅞×⅛×6, spaced ⅜ or ½ inch apart by being tacked to blocks of that thickness. This little frame is inserted in the comb horizontally, and the top-bar of the frame is painted red, or otherwise marked. On opening a hive, draw out this comb. If no cells appear in this opening, there are none in this hive. All other combs must be perfect (not contain openings), and it is better if they are built solid to the bottom-bar by having been inverted.

I have in mind a plan by which the operator may detect the presence of cells in these spaces by means of a mirror thrust into the deep entrance. Of course, the mirror is preceded by smoke.

THE NEW ALIGHTING-BOARD.

Your new alighting-board and entrance-regulator is open to the serious objection that, as the bottom board swells, it pushes the block away from the hive, thus opening the entrance when we do not want it open. This may be remedied by cutting the stick which closes the entrance shorter, so it will just slip in between the rails, and nailing it closer to the edge of the alighting-board. GEORGE DEMUTH.

Peru, Ind., July 2.

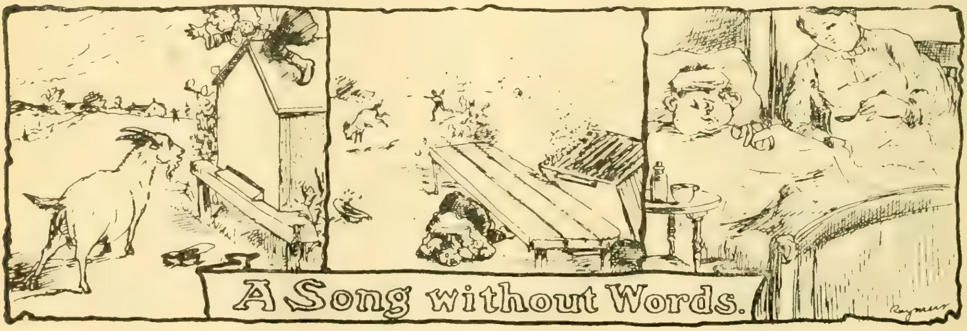
BEE-STING POISON AN ARTICLE OF COMMERCE.

Can you tell me any thing concerning the formic acid which is said to be collected by bottling bees, agitating them and killing them with alcohol? This product is said to be sold to eastern druggists at a good price. I should like to get the names of such purchasers. This bee-sting business looks to me like a hoax, as I have been personally acquainted with parties who have been stung many times, and still have the rheumatism; but as all such fads have a day it may answer to sell. W. W. RICH.

Clements, Kan., July 3.

[The active principle of the bee-sting poison, whatever that may be, said to be formic acid, is used largely by the homeopathic school of medicines. Some years ago we used to do quite a little business pulling bee-stings by the thousand. We have supplied Boerick & Taffell, of New York, with stings in lots of ten thousand, the same being dipped in a small vial of sugar of milk as fast as the stings were removed. At other times we have taken bees in lots of five or ten pounds, shaken them up until they became thoroughly angry, and then immediately dumped them into a large vial of alcohol. But because the pulling of the stings poisoned the operator pulling them, causing a swelling of the face, we refused to accept further orders of the kind.

We have had some reports, apparently showing quite remarkable cures where one was suffering from rheumatism after he had


A Song without Words.

been stung in the affected parts. We have had a good many other reports from those who have tested the stings and could see no benefit whatever. See Pickings.—Ed.]

WORKING COLONIES FOR BOTH COMB AND EXTRACTED HONEY.

On page 586, Brown inquires of Doolittle the best manner of working his 50 colonies for both comb and extracted honey. He gives a very good plan for doing so; but for this locality, at least, I have a way that I like much better. My plan is, to commence extracting from the upper super as soon as or a little before the bees have filled it in the spring, and keep extracting until the swarming furore is about over. By thus extracting it will greatly retard but not entirely stop swarming. Perhaps three or four out of ten will swarm — not more. By this time those that have not swarmed will be powerful. Now lift up the upper extracting-super, and put a complete super in its place. On the top of the super put a Porter bee-escape board, and set the extracting-super on that; and if the weather is favorable for honey-gathering it will be surprising how soon they will fill not only one but perhaps two or three supers. In this way one can have a small increase, and also a crop of both extracted and comb honey. JOEL HILTON.

Los Alamos, Calif., July 8.

A SWARM THAT WON'T STAY HIVED.

I had a swarm come out of a hive twice in one day. They returned both times to the old hive, and they came out again and were hived. They stayed two days, and swarmed out. I hived them again, and put up an entrance-guard of zinc. They swarmed out and left. Can you tell me how the queen got through the guard?

ALBERT BAKER.

Hartmansville, W. Va., June 18.

[A colony that has attempted to swarm, and goes back, will try it again; and if they fail to take the queen with them they will possibly kill her. A colony that acts this way should be hived in another location, or divided; or, better still, shaken on to frames of foundation on the old stand. I can not explain how the queen got through the zinc unless she was a small one. In rare cases queens will pass perforated zinc. —Ed.]

PICKLED BROOD; ITS CAUSE.

This disease generally makes its appearance at the beginning of white-clover bloom, and sometimes makes a general attack on an apiary as if by some magic power. In its infancy you will occasionally notice brood scattered perhaps on several frames with no cappings, which does not seem to have energy enough to spin its inclosure. In course of a few days the larvæ will turn a light brown, beginning at the head, very water-like; later turning dark and dry until at last the whole will drop from the cell if you turn the frame side downward. In a more severe attack, cappings with pinholes contain dead larvæ of like nature.

During the past four weeks we have had heavy rains followed by cool nights, the thermometer registering in some instances below 60, causing nectar to flow very thin, the bees requiring more time than usual to seal honey.

Some writers state that, when there is plenty of unsealed honey in a hive, the disease will not make its appearance. This I can not exactly verify, as in my experience I have found it in colonies (queen having access to the upper story) having upward of 40 lbs. of unsealed honey. If cool nights and rainy weather have a tendency to bring on the disease, does not this thin nectar gathered during cool and wet weather help to increase its progress if fed to larvæ? Careful observation may enlighten us more on this subject. A. J. HALTER.

Akron, O., July 11.

[A good many samples of brood like that described above have been sent us this season, and we had had reports of it from various quarters. I have seen it other seasons, but there has been very much more of it this year than usual, and I therefore conclude it must be a product of the season —the damp weather resulting in poorly fed larvæ, which, from lack of proper nourishment, die, and subsequently turn brown. Whether this is pickled brood or not I can not say. Mr. Halter came here in person, and submitted a comb. It looked like pickled brood. If that disease is caused by conditions present last spring and early summer, then we can account for much of it this season.—Ed.]

LARGE OR SMALL COLONIES—WHICH?

Comment on Doolittle theory that a stock of, say, 20,000 bees is better than two lots of 10,000 each joined to make one lot. The reason they are better is because the stock of 20,000 began to breed early, therefore there are 10,000 nurses in that stock; whereas the two 10,000 lots when joined will not muster above 5000 nurses. It's the nurses that count in the spring.

Long Eaton, Eng. J. GRAY.

[I do not think there can be any question that the larger colony is more profitable as a rule.—Ed.]

WHY IT PAYS TO KEEP POSTED.

In one of Doolittle's chats I saw an item that saved me just one dollar, and GLEANINGS gets it.

I am troubled beyond endurance by the wax-moth. The season here is so long for them that they will ruin me if I can not find a preventive.

MRS. LOLA L. CLEMONS.

Hamilton, Va.

[There will be no trouble from wax-moths if you have pure Italian blood in your bees; and they do not need to be pure Italians either.—Ed.]

OUR HOMES,

BY A. I. ROOT.

> Whosoever will be great among you, let him be your minister; and whosoever will be chief among you, let him be your servant.—Matt. 20 : 26, 27.

Some of the friends may think I quote a good deal from the *Sunday School Times*, and no doubt the *Times* is sometimes in error. Its editors would not be human if they never made a mistake, or perhaps we might say get a mistaken idea of the Scriptures. But, taking it all in all, I do believe the *Times* occupies about as high a place in spiritual matters as any other periodical in the world. I have before referred to the care which they take in regard to their advertising pages; and I am led to believe they exercise a still greater care over the reading. An editorial in their issue for July 2 has almost startled me with the vividness with which they portray one of the grandest truths of the Bible. In floral decorations and displays we make certain plants more vivid and more beautiful in their coloring by sharp contrasts. Close by that greenhouse I pictured to you in the last issue there is a little bed that in the spring was covered by a single sash. It is only 3 ×6 feet. Fronting the road there are three plants of golden-bedder coleus, one of the brightest strains I ever got hold of. Just back of these three plants, and almost surrounding them, are some deep-purple (almost black) plants of the *Achyranthus lindenni*, and up over all is a gorgeous display of petunias, both single and double. Now, the coleus is brighter and more beautiful because of the strong contrast to its golden hues presented by the side of the glittering achyranthus that makes one think of ripe cherries—cherries that are so red they are almost black. And then the beautiful variegated blossoms of the petunias with the coleus and achyranthus to fill up and support them, as it were, make such a little spot of beauty that I am almost startled, a dozen times a day, when I look upon it suddenly. When I get up in the morning, after a July shower, I feel like saying to myself, "Did you ever see any thing so beautiful?" May God be praised for these glimpses of beauty.

Now, the words of Jesus, the Savior of the world, that I have placed at the beginning of this talk, were made to stand out sharp and clear as I never saw the text shine before by a little editorial in the *Sunday School Times*. Here is the editorial:

> Names are often used thoughtlessly, and an institution should not be condemned because of its unfortunate name. But it is worth while to note the wrong direction that is given to young people's life courses by the use of a phrase often heard. A current magazine describes a certain "School of Self-culture." There is no such thing as "self-culture," in the sense in which the framers of that title would like to be understood. Self-culture is suicide, but they would not fancy that paraphrase. "How can I do most for self?" is the tacit question that mars many a life. "How can I best improve myself?"—and the questioner applies to a school of self-culture, instead of asking "How can I best prepare to be of service in the world?" Equipment of self for unsparing service is a proper pursuit. A course of training in order to spend self is likely to amount to something. Self-culture—never! Imagine the Nazarene saying: "Whosoever would be great among you shall — cultivate himself!"

Yes, it is indeed true that this whole wide world, even our schools and colleges, our great lecturers, and perhaps some of our great teachers, are urging *self-culture*. We are taught over and over again to "do with our might what our hands find to do," and to "improve each shining hour;" to be *busy* at something, and to take care that the work of every hour shall leave a substantial record of some sort. Even our religious papers are advising people to take *care* of *themselves*. Our great doctors are showing us how to *take care* of our bodies that God has given us, so as to prolong life. But the largest part of it seems to be from a *selfish standpoint*. When I got to the end of that editorial and read the words, "Whosoever shall be great among you shall—*cultivate himself*," I was startled. Did Jesus ever have such a thought in mind? Not at all. He said, whosoever will be great among his fellows shall take upon himself the office of a servant; he must be servant to the people, serving the people. His end and aim should *not* be self, but the general good of his fellow-man.

We have heard stories of kings in olden times who disguised themselves and went about as a common person might. They did this in order to find out better about the abuses and injustice among their subjects, especially on the part of the rulers. We are not told they preserved their incognito very long; but I am glad we have records that some one in authority has done it, even for a little while. Ours is a country of patriotism. We are patriotic as a nation; but how in our days shall this patriotism be applied to the thought that Jesus teaches in our text? Men have given their lives for their country, and their names have been handed down to posterity. They have died that their fellows might have life and liberty. Just now we are needing patriots who are willing to *live* as well as *die* that humanity may be relieved of some of its useless and unfair burdens. When we think of the revelations that have been recently made of the strifes that are going on to get hold of the money that belongs to the common people—the tax-payers—how it makes us feel the need of men who not only *love* but *live* Jesus' words! of some who are anxious to be *servants* instead of being lords and living in luxury!

In another part of that same issue of the *Times* there is another editorial containing the following:

> There is an Old Testament story from which it is perhaps not unfair to draw an illustration of this principle. When the children of Israel set out from Sinai, Moses endeavored to induce Hobab, the son of Reuel the Midianite, Moses' father-in-law, to go with

them. As an inducement, Moses promised him that it would be to his profit to come "I will not go," said Hobab, "I will go home." Then Moses urged that they needed him as a guide through the wilderness into which they were going. And Hobab changed his mind and went. Some men want wages for their work; others want work for their wages.

The words that surprised and startled me in this are the following: "Some men want wages for their work: others want work for their wages." In my experience in employing men, women, and children, I have found *hundreds* who want wages. They want *better* wages. They are constantly inquiring of their employers if they, the employers, do not think they are worth a little *more* money than they are getting; and if somebody offers just a few cents an hour more, we have got to pay it or let them go. Sometimes they do not even tell us they have had a better offer. They jump at this offer for a cent or two more an hour, and drop their work without even explaining to their employer, or their successor, so that somebody else may pick up the broken stitches without injustice to customers, and financial loss. These people are working for *wages*, and this matter of wages seems to be the sole inspiring motive for their work. Thank God, however, this is not altogether the rule. Some bright memories come to me as I dictate, of those who have in years past come to me with something like this: "Mr. Root, I am more obliged to you than I can express for having advanced my pay, especially when I did not expect it; and what troubles me now is that you are offering me more than I can earn. Now, if there is any way that you can suggest whereby I can be of more service to you than I have been heretofore, in order that I may keep this advance you offer, *with a clear conscience*, I shall be very glad to know how to do it."

Oh what a pleasant feeling there is on both sides when dealing with such persons! This last dear brother or sister, for I can with a clear conscience call them by such endearing names, wanted *work* for the wages given. They wanted *more* work. Does it occur to you, dear friends, that this class of people have in their minds something like the texts we are considering? They want to serve the world, and are more concerned about making their service good, and worth a hundred cents on the dollar, than they are about studying day and night to see how they can get still better wages without a particle more of service. While I am about it, let me say that, as memory goes back, I find that every one who had the feeling that he was getting more pay than he really earned, and therefore was constantly striving to do more for his employer—such people have always "forged ahead." The great greedy world, if you will excuse me for speaking in that way, of the average world, is looking for just such people. It grabs for them; but, thank God, such persons do not hasten to leave their old employer, even if somebody else does offer more pay. There is a sense of fairness and justice in their makeup that forbids any thing of the kind.

This last editorial I have quoted was from an article discussing whether ministers should go somewhere else when a larger salary is offered. When it seems plain that a minister can do more good to humanity by going to a larger field he ought to be willing to go; and his people, no matter how much they love him, should be glad to have him go. Both pastor and people should forget self, and think rather of humanity.

We have recently been discussing the advertisements in the different periodicals in our land. Mr. Bok has called our attention to the class of advertisements found in our religious papers. Now, advertisers as well as editors, if they have any glimpse at all of the character and spirit of the Lord Jesus Christ, would consider *first* how they might benefit humanity; and, secondly, the matter of fixing a fair price for their services. The object-lesson we have been taught by Duffy's malt whisky comes in here in contrast with Jesus' words in our text in a way to make those words precious. The whisky men evidently have no conception of bettering humanity; indeed, I do not believe they have any conception of humanity at all. In their selfishness they have forgotten there is anybody in the world except victims to be plundered by such as they are. They are quite willing to curse humanity, to chain it down with an appetite that will send one to the bottomless pit, just so they get the dollar. They have learned by being among good men—that is, they have been among good men sufficiently to learn that the world generally has some faith in a letter with a man's name signed to it, especially if the writer gives the place of his residence. They take it for granted the average person will believe such a letter to be genuine. In their efforts to gather in the dollars, they seem to have no fear of God or man. We may feel certain, too, they do not fear the *Devil*, perhaps because they are so intimately acquainted with him; therefore they perpetrate these outrageous and baneful falsehoods, and secure space to print them in periodicals that are generally supposed to be reliable.

We have been treated to some magazine articles in regard to the shame and corruption in some of our great cities; but this same shame and corruption, it seems, is not confined to the great cities. Society is all honeycombed with it. For many years we as a nation have been prosperous. Everybody is busy. Almost everybody has means; and I fear we have been too busy to look up and point out the wolves in sheep's clothing. Science, arts, and industries are making great strides. Oh that we might see corresponding strides in the way of godliness and righteousness! that we might see able men in high places who are hungering and thirsting for service instead of hungering and thirsting for the dollars that rightly belong to the honest tax-payer! Oh that we might see the striking thousands hungering and thirsting for *work* instead of hungering and thirsting for *wages!* Where is our Christianity? where are our churches and our church-members? where are our Sunday-schools and their superintendents? where are the Endeavor societies? Several times I have complained because these organizations do not catch on more closely and intimately with the Anti-saloon League, W. C. T. U., etc. It has sometimes seemed to me as if our religious organizations were going one road, and the great wide world, especially about this season of the year (this vacation time), were going another road. The Salvation Army, may God be praised, seems to be occupying the middle ground between worldliness and godliness. If there is a dividing fence or wall between the professing Christian and the rest of the world, the Salvation Army is tramping it down. They are making a cross-cut instead of developing roundabout ways—the unwieldy ways we often see the churches adopting.

The editor of the Philadelphia *Farm Journal* is teaching vehemently that automobiles have no business on public roads. This one journal stands almost alone in the position it takes. I have been privately remonstrating with the editor. He declares there should be roads for the automobiles and separate roads for the farmers. But I asked him a question something like this: "Suppose that we who prefer to use the automobile should make better roads, and more direct ones, between the great cities than the world has ever seen before, shall horse-drawn vehicles and pedestrians be kept off from these convenient thoroughfares?" At first he did not reply; but but when I pressed him for an answer he said he would have a tight fence in the middle of this ideal thoroughfare, and keep the common people on one side and the automobiles on the other. Now, I do not agree with him at all. Our new beautiful convenient highways that are going to be constructed in the future are to be for *everybody*, high and low, rich and poor. We are all going to help build them, and then we are all going to use them. We do not *want* any division fences. The men who run autos must obey the law, and so must the men who drive horses or go on foot; and these laws must be wisely and judiciously framed — not to favor unduly one class or the other. All who travel on these roads must learn to have only love in their hearts toward all. "Whosoever will be great among you, let him be your servant." The man who owns the automobile should delight to pick up a woman or child and give such person a ride, especially if he is a gentleman of wealth and leisure; and the man who has an humble rig, with perhaps a poor old horse, must not purposely vex and annoy his wealthy neighbor just because of a feeling of bitterness in his heart toward the man of means. I asked the editor of the *Farm Journal* which is better — to stir up warfare and strife between neighbors, or to have a farm journal of wide circulation endeavor to cultivate friendly and neighborly feelings. The reply was that sometimes war is better than peace. This may be true, under some circumstances — the "Duffys" for instance; but I am sure it is *not* true, and never *will be* true, that it is better to have war over such a simple matter as a difference of opinion in regard to how a man shall travel.

Now, dear friends, my earnest and fervent prayer is that the unexplored regions of happiness and good will that exist along the lines of Jesus' words may be the next great craze that will stir our nation. A great many are prophesying that we shall soon navigate the air with flying-machines; and I begin to have faith that I may live to see the time when such things will be as common as automobiles are now. Instead of spending so much money in making roads on which to travel, we shall just skim right over the mud-holes and the ruts, and travel on air. After we get so we can skim over these things I have mentioned, say a foot or two, then we may be able to get above the fences, buildings, and possibly the forests. Will it not be glorious when you can take your wife out for an evening ride, and sail clear above the din, turmoil, and strife? Yes, all of thes things will be grand; but, dearly beloved (and I have in mind those who have been reading my Home papers for years past), this thing of flying through the air would be as nothing compared with seeing humanity with a *great revival* — say a great craze or hobby for rich and poor, old and young, to outdo each other in *serving* their fellow-men, and in cultivating honesty, truth, unselfishness, and neighborly love one for another — such a love as the dear Master showed when he loved *even his enemies*, and prayed with his dying breath, "Father, forgive them, for they know not what they do."

THAT AUTOMOBILE AT THE PRESENT DATE.

With the present good roads it is doing more service than ever before. It runs errands, delivers goods, saves steps, and saves money in a dozen different ways, just because it is always ready to start at a moment's notice; and it will start, too, almost with a jump if you want it to. It is never tired, and it is never weary; and although it has been in almost constant use for over a year, no one who is accustomed to handling it seems to complain when called on to use it. From the grandpa (your humble servant) clear down to the grandchildren they all like the fun of running the auto. Sometimes somebody says, "Would Mr. Root mind taking his auto and going to so and so's?" Mrs. Root always replies, "Why, he is always delighted to have some opportunity of using his pet." Now, this word "pet" reminds me that, a year ago, I mentioned at length the wonderful fact that the automobile copies more nearly animal life than any thing else the world has yet produced, and it is the same way still. Why, not only have I an affection for the auto, but it really *seems* as if the auto loves me, and delights in doing its very best whenever I have hold of the "reins." Beginners yank on the bits, and talk to it in a way that it is not used to, and it gets balky and contrary, just like a horse. Some of the younger ones will complain that it acts so and so; but I reply, "Why, I have just been running it, and I supposed every thing was in beautiful order." So I spring into the seat, grasp the levers, and, sure enough, it is just as obedient and docile to the touch as one could wish. You see I am acquainted with the auto, and the auto is acquainted with me, just exactly as a horse knows its master, and knows the master has genuine love in his heart for that particular animal.

Of course, with the tremendous service the machine is doing there is more or less wearing out and giving way. During the past ten days it has consumed about 12 gallons of gasoline; and 25 miles to the gallon, the general estimate with fair roads, would make 300 miles. I suppose almost any buggy would show some wear and tear after covering that distance; and to do such work as this, somebody must keep careful watch of the oiling, of the bolts, and every thing else where there is wear and tear. The machine is made for two persons; but in going to church and other places we put on the back seat and carry four and sometimes five; and this double load, or a little more, is always much more trying to the machine than where it carries only two, or, perhaps a little better still, only one.

The machines the Olds Co. is making for 1904 have been very much strengthened and improved — so much so that I talked with the agent of that company about an exchange; but he said there are so many second-hand machines on the market now he could not see his way to allow me more then $300 for my old one. This would mean $350 more to get the latest up-to-date machine. That would make, say, 10 cents a mile providing my machine has run 3500 miles during the past year, besides the repairs and gasoline. Well, I have decided not to trade. The old one is lighter than the new one, makes less noise, and I presume it can be run at less expense for fuel than the new one, so that I have decided not to change. We have now only $300 invested in the auto — no more than many people put into a carriage and span of horses. Of course, some repairs may be needed as the different parts wear out, but nothing like $350 a year nor even any considerable fraction of that amount. We have all — father, children, and grandchildren — learned to be so familiar with the machine we know the instant any thing is going wrong. There is an electric light in the auto-house, so we can go all over it evenings and see that every thing about it is in apple pie order. I have told you that in gardening, if you want a plant to grow you must love it, look at it daily, and study its wants and needs. If you want a horse to do his best, or a cow, you must love the animal and get intimately acquainted with its likes and dislikes and its wants. It is just the same with the auto. Even though it is greasy, and may be the women-folks would say "nasty" to handle, your love for it must be so you do not mind that. For the dear wife's sake, if none other, have some overalls and oversleeves to put on when you have to get down into the machine or under it. Learn how to use the gasoline with the greatest economy, likewise the lubricating oil. Of late we have made a great saving by using what is called non-fluid oil—an oil so thick that it will not run and drop on the ground even during very warm weather. This is put into the bearings with an oil-gun furnished by the oil-dealers. With this little implement the oil is put just where you want it—just enough and no more, without daubing every thing with grease and without oiling the *road* wherever you go.

I would not advise anybody to purchase an auto unless he is prepared to look after the machine personally. If you run it you should make the repairs unless there is something that absolutely demands the services of a machinist. You should look it all over during rainy days or evenings. If you depend on hired help you will have to pay a big price for a competent man, and he will hardly then be likely to take the interest in it that you do yourself. With a machine that goes into science and mechanics as this does, it can not but be a great educator. You must study up on chemistry, mechanics, good roads, weather, lubrication, and so many other things, that, when you become an expert, you will have acquired quite a general education and a most valuable education for all the business of life.

There are toward twelve automobile periodicals. Of these I would recommend especially the *Horseless Age*.

The whole scientific and mechanical world just now is working for short cuts, and how to improve and make more useful this wonderful gift to the children of this age from the great Father above. Let me give you an illustration of a discovery of mine. Very likely it is not new.

The machine when it came from the factory was furnished with a set of eight dry batteries to furnish a spark for igniting the gases. Now, these dry batteries are more or less uncertain. The first set lasted about four months. Of a second set made by the same firm some began to fail in one month; and I paid about $10 for a storage battery to take the place of the dry cells. This was heavier than the latter, and proved to be still more uncertain; so I dropped it and purchased eight more dry cells at a cost of 18 cts. each. Four of these ran the machine when new. When they become partially used up the whole eight can be made into a series to do the work. Now, these dry cells, even when made honestly, do not hold out alike. Some may play out in one month, while some of the rest may last six months. We are using some that have been used more than that time. Some time in June I bought what is called a battery-tester, for 75 cts. This indicates the power of each cell; and by throwing out the weak cells as the current runs low I have used the greater part of them since about the first of January. And now comes the great advantage of this plan. If you use the whole eight until they are worn out, or till some of them are worn out, or use the storage battery, you will have to carry around an extra set or an extra storage battery for fear they will give out when you are away from home. With my plan of replacing one at a time, one or two single cells in your tool-box will enable you to go away from home a hundred miles or more with very little to carry. You carry these extra dry cells just as you carry an inner tube for the rubber wheels.

By the way, our rubber tires have done excellent service since Jan. 1, without any expense for repairs; and one reason for this is that I have also learned how to handle rubber tires. It pays to be exceedingly careful about where you run your machine. Do not go through grass or rubbish where there may be concealed boards with nails sticking up, pieces of wire, broken glass, etc. Look out for a bit of loose board in the road. Do not run over it. A nail may be sticking out of it. Keep away from sharp stones.

In summing up I would say our machine as it is now, valued at $300 or $400, is cheaper than a horse and buggy.* In summer it always stands at the door in front of the factory; and we are all careful to see that it is always in order for an instant start. Of course, nights and rainy days it stands in the auto house. Right close to it is a work-bench with a good assortment of tools for all necessary repairs. Under this bench is the gasoline, three kinds of lubricatimg oil (hard and soft), some waste for cleaning up, and an assortment of pieces of woolen cloth to wipe off the machine as well as your fingers, and every thing that may be possibly needed to keep it in order. It may not be exactly a "thing of beauty," after having run so many thousand miles the first year, and it may not be *exactly* a "joy forever;" but it comes pretty near being so to your old friend A. I. R.

HIGH PRESSURE GARDENING BY A. I. ROOT

"CHERRIES ARE RIPE."

May be the early ones will be ripe and gone when this comes to your eye; but our new and improved cherries have such a long period of ripening, that, if you have not got ripe cherries and had them since strawberry time, it is because you are not up to date. Mr. Calvert and I recently visited friend Hilbert's cherry orchard of 400 trees. He has all of the standard varieties, and some others by way of experiment. I can not remember the names of all of them, but I was especially pleased with the May Duke. It is not only exceedingly interesting, but it is very satisfying to any lover of fruit to go through a cherry-orchard and test the different kinds. Very many times I would say, "Don't go any further, Mr. Hilbert. These exactly hit the spot. I do not want any thing better." But he would say, "Oh! don't you be in a hurry. Wait till you have seen some of the others, and then give your verdict."

Why, it was a happy surprise to me to find there so many exceedingly nice early cherries, As we had a walk of three or four miles before us I ate just all I wanted, as I used to do when I was a boy, and no bad effect followed whatever; and that is one reason why I especially love that region around Grand Traverse Bay; for while I am up there in the open air I eat fruit indiscriminately, without any trouble at all.

Now, the principal thing I wanted to write about is this: Some years ago friend Hilbert tried grafting our best early cherries on the wild cherry of the woods, fence-corners, and fields. There are more wild-cherry trees around Grand Traverse Bay than I ever saw anywhere else. My woods is full of them; and whenever the other timber is cut out, the peculiar kind of wild cherry of that region springs up with wonderful alacrity. It starts up every little while where we have cleared the ground for potatoes, and in just a few weeks it will shoot up as high as your head. Now, I do not know how much has been done in the way of using this native wild cherry to bud or graft on to; but it is so very hardy, and of such rapid growth, that it seems there must be wonderful possibilities open in this direction. Perhaps some of our readers who have nurseries can tell us about it. Mr. Hilbert's trees grafted in this way made a wonderful growth, and they are models of luxuriance. The fruit is the finest I ever tasted in my life. The cherry industry is by no means a new thing around Grand Traverse; but I do not know how far the experiment has been carried of using the native wild cherry for a stock to graft or bud on. I thought once of grafting my cherry-trees in the woods; but I suppose we probably would not get *nice* fruit without giving the trees the usual amount of room, cultivation, and care.

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* On the preceding page I said if the machine had deteriorated $350 in value in one year, that deterioration would represent about 10 cents a mile. But this is not the case. The agent who sold me the machine said I ought to get $500 for it. This would be only $150 for one year's use. And still again, it has almost always carried two persons, and a good deal of the time three and four. Now, the machine may not sell for as much as it has cost, but it may be worth to the purchaser nearly the original price, for in several places we made repairs, curing defects, and improving on the original make. But suppose we say $150 depreciation in running 3000 miles. This would be 5 cents a mile for the *load;* and if the average load was between two and three people, the actual cost would not be over 2 cents a mile, while three of us (if not four) were learning the trade of running it. To this must be added the cost of gasoline, lubricating oil, and repairs. Had the machine been housed up except in good weather, and not run all winter long during almost all kinds of roads, it would, of course, be in much better condition than it is now.

BIRDS, BERRIES, AND CHERRIES.

While over at Mr. Calvert's I saw an early cherry-tree covered with a mosquito-bar bee-tent. He explained that the birds were getting the cherries before they were really ripe. It was a new variety, and they were anxious to test some that were fully mature, besides wanting their share of the ripe cherries. The mosquito-bar tent did the business to perfection, and it cost, cloth, only about 60 cts. Just about that time we had a single Juneberry-bush that was perhaps four feet across, and just loaded with beautiful fruit. I went out one morning and picked perhaps a teacupful of the finest ripe ones, and thought I had never done the Juneberry justice. It seems the birds had not yet discovered them; but within 24 hours they caught on to the fact that Juneberries were getting good. I waited day after day until I began to think the birds would have the whole crop as they had been in the habit of doing for years past, when I remembered the mosquito-bar over the cherry-tree. Then I noticed over at the apiary a wire-cloth bee-tent that had not been used, as there are no robbers when basswood is in bloom. We set it over the Juneberry-bush about July 4th. Now, it not only kept the birds away but I should not wonder if quite a few youngsters found that wire-cloth house a little inconvenient. It was almost too heavy for them to lift up handily. Well, to-day, July 14, we picked several quarts of Juneberries that far surpassed any thing I ever saw in my life before, and yet I have eaten the fruit almost every year since childhood. Under the influence of plenty of rain and perfect protection from birds they grew to almost the size of cherries — small ones, I mean — and the matured fruit was so much superior to the berries generally picked before the birds get them that I uttered an exclamation of surprise.

Now, here is a big discovery. It is a *big* thing, even if it is not a *new* thing. Mosquito-bar bags or tents big enough to cover a Juneberry-bush would not be very expensive; and the amount of fruit saved in a single season would, I am sure, more than pay the expense, and I feel certain that many people never tasted the improved Juneberries when at their best unless they have kept the birds off by some such device as I have described. The bush is a rank strong grower, and has no insect enemies. The bushes are always loaded. I never saw a failure. The only drawback is the birds, and this trouble is almost universal. By the way, the *birds* generally know a *good thing*. They are rather partial to sweet fruits. The Juneberry is very much like a large luscious huckleberry. They are not very tart, and that is one reason why the birds are always after it. Birds will put up with a sour cherry, dead ripe, providing there are no sweet cherries or berries to be had. Our Juneberries came from Storrs & Harrison, Painesville, O.

One of our readers sends us the following, taken from the *Farm and Home* for May 15:

> My experience with black-hearted potatoes is that it takes a quick rank growth of vines to produce black centers, and also that light soils are more liable to produce them than heavy soils — perhaps because the tubers can grow faster in light loose soil. I can take any potato, no matter how prone to black centers, and use a fertilizer that will slowly become available, that is, that will take all summer to do it in, and then, by thorough spraying, which will keep the vines green all summer, and prolong the growth of the tubers to at least three months, raise them without black centers. There were no black centers in my potatoes last year, and I had hundreds that weighed 2 lbs. each or over. E. A. ROGERS.
>
> Sagadahoc Co., Maine.

We have a lot of those "roasted-chestnut" potatoes growing very nicely so far, and we are watching them with considerable interest to see whether they will all be hollow on our Medina clay as they were on the sandy soil of Northern Michigan.

DUFFY'S MALT WHISKY—MORE ABOUT IT.

From the *New Voice* of June 23 we extract the following additional, illustrative of the cheek this firm has shown in advertising its intoxicant. Our selection is taken from quite a number of similar exposes.

> Rev. Edward M. Ellis, of Helena, Mont., wrote to Mr. Quinlan, of Albany, N. Y., whose name had been appropriated by the Duffy people. Mr. Quinlan must have been surprised to find his picture in a quarter-page advertisement with the following testimonial:
>
> I always had tendencies toward lung trouble, and for many years have suffered a great deal with heavy colds and congestion of the lungs; was growing worse daily. My family and friends knew I had so-called incurable consumption, and urged me to go to Hot Springs or to the Northern Woods as a last resort. But I was too weak to travel, and gave up hope.
>
> My doctor finally prescribed Duffy's pure malt whisky, and with the first dose improvement set in and hope revived. I stayed right at home in Albany and kept on taking Duffy's, and in two months my lungs were as sound as a dollar. I had gained twenty pounds, and am to-day in absolutely perfect health. Duffy's saved my life.
>
> WM. T. QUINLAN, 123 Second St., Albany, N. Y.

Please note the above later statement, "In two months my lungs were as sound as a dollar." Think of the sick people whose hopes might be revived by such a startling testimonial. Now read below:

> In reply to Mr. Ellis' letter, he says:
>
> Albany, N. Y., March 9, 1904.
>
> MR. ELLIS:—I have never used Duffy's malt whisky.
>
> WM. QUINLAN.

You see Wm. Quinlan never used the Duffy malt whisky at all. One wonders, as he reads it, why these people did not take a fictitious name. I presume they thought it would be better to pretend the testimonial came voluntarily from somebody of established reputation. I wish some legal friend would tell us if there is no law to punish such work.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

Last winter was a severe test on Bees,

But Quirin's Famous Leather-colored Italians

wintered on their summer stands, within a few miles of bleak Lake Erie. . . .

Queens now Ready to go by Return Mail.

Our new circular now ready to mail.

ADDRESS ALL ORDERS TO

Prices after July 1.

	1	6	12
Select	$ 75	$ 4 00	$ 7 00
Tested	1 00	5 00	9 00
Select tested	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight five-band breeders	5 00		
Palestine queens	1 50	8 00	15 00
Two-comb nuclei, no queen	2 25	12 00	22 00
Full colony on eight frames	5 00	25 00	
Four fr's brood, & 4 fr's f'd'n	4 00	22 00	

Special low prices on Queens and Nuclei in 50 and 100 Lots. Nuclei on L. or Danzenbaker frames.

Quirin-the-Queen-Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY . . . . . .

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200

Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1.50; select tested $2.50; breeders $4.00 to $7.00.
Illustrated price list free for the asking.

W. O. VICTOR,

Queen Specialist. Wharton, Tex.

BEES FOR SALE

OVERSTOCKED.

We have more bees than we can operate, and offer them as follows: Full colony with good young queens at **$5.50** each; twenty or more, **$5.00** each; three-frame nuclei with queens, **$3.00** each; twenty or more, **$2.50** each. Bees are all of the best improved races. The full colonies will be furnished in single story ten-frame Dovetailed hives, and have eight frames of brood, bees, and honey, and two frames of foundation.

CAR LOTS.

We will furnish bees in car lots as above at **$4.50** per colony.

LOCATIONS.

Any one wishing to locate in a fine bee country can find suitable locations near here, and we can supply you bees at satisfactory rates. Circulars and full information gladly given. Address

THE HYDE BEE CO.,

FLORESVILLE, TEXAS.

CARNIOLANS AND ITALIANS.

Untested Queen 75c.; Six for $3.90; Twelve for $6.00. Tested $1.25. Best Breeder $2.50. Imported $4.00.

Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

F. A. LOCKHART & CO.,
Lake George, - New York.

Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years. We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness*.

Italians.

Gentle, prolific, swarm very little, hustlers to work, and a red-clover strain.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

Do You Want Good Queens ? ? ? ?

TRY OUR STRAIN OF GOLDENS---We have good queens—Plenty of them—Reared under favorable conditions. Some of the largest bee-keepers of United States and Cuba have tested large numbers of them *and keep on buying*. Our strain build comb freely, and cap their honey white; are pretty, prolific and gentle. We warrant our queens good and purely mated, or replaced free. Good-laying, fair to large size, 75c each, $7.00 per dozen; largest and best, $1.00 each, $9.00 per dozen; ordinary tested, $1.00; selected, $1.50; extra select, $2.00.

J. B. CASE, Port Orange, Florida.

Queens by Return Mail

We are now breeding from three distinct strains, viz., Imported or leather color, Root's long-tongued or red clover strain, and our old strain of white-banded yellow Italians, or albinos. :: :: ::

August and September Prices

Untested, each........	$ .65;	half doz. $3.75;	doz. $ 7.00
Warranted, each.....	.75;	half doz. 4 25;	doz. 8.00
Tested, each..			1.25
Select tested, each..................................			1.50

We have also a full line of bee-keepers' supplies including The A. I. Root Company's goods . . **Root's Sections and Weed's Foundation a Specialty.** Send for our 32-page illustrated catalog. . . . .

W. W. Cary & Son, Lyonsville, Mass.

Virginia Queens

Italian queens secured by a cross, and years of careful selection. From red-clover queens and Superior stock obtained from W. Z. Hutchinson. I can furnish large vigorous untested queens 75 cts.; after June 15th, 60 cts.; tested queens, $1.00; after June 15th, 75 cents.

Write for discount on large orders.

CHAS. KOEPPEN,
Fredericksburg, - Virginia.

Red Clover and Three and Five Banded Queens.

Untested, 65 cts.; $7 per doz. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $3 25. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred special prices.

G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENNA.

MOORE'S STRAIN OF ITALIANS

AS RED-CLOVER WORKERS.

L. C. Medkiff, Salem, N. J., says: "I bought an untested queen of you last year, and her bees have filled three comb-honey supers, and did not swarm, while thirteen out of the fifteen other colonies did not get more than half that amount

I have queens from six different breeders, and I class yours 100 per cent above them all. Your bees worked very strong on the first crop of red clover. I know they were yours, because I floured them with a dredge-box and watched the hive. They also worked strong on the second crop of red-clover and lima-bean blossoms."

Untested queens, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5.00; dozen, $9.00. Safe arrival and satisfaction guaranteed.

Send for descriptive circular showing why my queen-trade has grown so fast. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Key.

The Best Stock!

Twenty years' experience in rearing Italian queen bees, and producing honey on a large scale has taught me the value of the best stock, and what the best queens reared from that best stock mean to the honey-producer. I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then by crossing these different strains and selecting the best and breeding from them I have secured a strain of stock that is the equal of any for honey-gathering.

> Delanson, New York, July 10, 1902.
>
> MR. ROBEY Dear Sir: The queens that I bought of you two years ago were the finest lot, and the best honey-gatherers of any queens I ever had, and I have had over 1000 queens from the principal queen-breeders of the United States. E. W. ALEXANDER.

Warranted queens in any quantity, 60c. each. Safe delivery and satisfaction guaranteed or money refunded.

L. H. ROBEY Worthington, W. Va.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Second-hand Barnes foot-power saw.
THE A. I. ROOT CO., Medina, O.

WANTED.—Chunk comb honey during season, any quantity; cash paid. E. A. HEARN, Salisbury, Md.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—A quantity of Egyptian onion-sets and roots. Write quantity and price you will sell for.
BEEBEE & RATHBORN, Oneida Castle, N. Y.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange catalog describing the best hive in existence, a double-walled hive for only 20c extra, for your name and address.
T. K. MASSIE, Tophet, W. Va.

Help Wanted.

WANTED.—A practical all-around kind of man for bee work in summer, and greenhouse and shop work in winter. A job by the year for the right man. Married, and middle-aged preferred. Drinkers and smokers not wanted. Reference required. Write me. R. C. AIKIN, Loveland, Colo.

Situations Wanted.

WANTED.—Steady employment by the year by practical bee-man, working bees in season, and any honest employment when bee work is over. Can furnish No. 1 reference. Capable, honest, and sober, age 27, single. Address, "A. B. MAN,"
Box 11, Floresville, Tex.

Addresses Wanted.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—Full colonies of leather-colored Italian bees at $5.00 each. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Honey-extractor; price $4.00.
FRED W. BUTTERY, Norwalk, Conn.

FOR SALE.—A few hundred cases of 60-lb. honey-cans, good as new, at about half their real value.
J. A. BUCHANAN & SONS, Hollidays Cove, W. Va.

FOR SALE.—Second-hand 60-lb. honey-cans. Good as new. Satisfaction guaranteed.
LEWIS C. & A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—200 colonies of bees in 10-frame Dovetailed hives, bees fine shape on wired Hoffman frames, locations go with them. Call Box 82, Floresville, Tex.

FOR SALE.—My apiary of 90 colonies, in good condition, straight combs, good location; a liberal discount on fixtures and supplies. B. F. HASTINGS,
Perry Park, Col.

FOR SALE.—Finest quality, extracted white-clover honey at 7½c. per pound, in cases of one new 58-lb. can. Sample, 8c. R. & E. C. PORTER,
Lewistown, Ill.

FOR SALE.—Our new, 1904, crop of white extracted honey, is better than ever this year, mostly new 60-lb. cans, 7½@8c. car, for clover and basswood, sample free. E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Five-gallon square tin can used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Slightly damaged hives at a very low price; first-class in every way, Lewis make, both eight and ten frame. Can ship at once.
LEWIS C. & A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

FOR SALE.—Italian bees with red-clover queen; 3-frame nucleus on Danz. frame, so you can make a start with Danz. hives, $3.50. Standard frames the same. Orders shipped immediately.
F. H. FARMER, 182 Friend St., Boston, Mass.

FOR SALE.—500 colonies of bees in Root's 10-frame hives in fine condition. Will sell in lots of 50 or upward. Also fine 100-acre farm at a bargain. Write or call quick for full particulars.
UDO TOEPPERWEIN, San Antonio, Tex.

FOR SALE.—1000 supers of our own make for 4¼x4¼x1⅞ sections for Langstroth 8-frame hives, empty, at 13 cts. each. With section-holders and separators added at 30 cts. each. Write early, for they will not last long. Write us for bee supplies.
ROY A. WILSON, Kearney, Neb.

FOR SALE.—At 75 cts. each, choice laying queens, reared from a select mother the "Carniolan—Italian cross," the coming bee for comb honey, a red clover worker. A customer writes: "The colony containing your queen has been storing over 25 lbs. of comb honey per week for some time. Inclosed find money-order for another." A trial order will convince you; satisfaction guaranteed. L. H. PERRY, Clay, N. Y.

FOR SALE OR EXCHANGE.—One tent, white 12x25; one 20x30, 7 ft. wall; one new Belgium double-barrel shot-gun, size 38-55; No. 12 Edison Standard phonograph, and 36 records; trotting sulky; the best show out for tent, platform, or store, at a bargain, "The South Carolina Camel Boy," including two live monkeys, cost $100. Want honey, wax, foundation, extracting-combs, or honey-extractor. Write quick.
R. L. TODD, Milltown, New Brunswick, Can.

FOR SALE.—50 swarms of bees, strong and healthy, Langstroth hives, largest size, 12 inches deep filled to the brim, will average nearly 100 lbs. each; no disease. Empty hives, 100 supers, lot of supplies of all kinds. Reason for selling, poor health and old age. Barred Plymouth Rock hens and chickens, ringlets, Thompson strain, good as the best and better than the rest. Rose-comb Brown Leghorn, and single-comb Brown Leghorn hens for sale now, chickens later.
N. L. HIGBEE, Elsie, Mich.

Buy your supplies now. Will close out balance of my stock at 8 per cent off Root Co.'s catalog price. All are Root Co.'s goods, just received from factory. Large stock of 8 frame Dovetailed hive-bodies; Simplicity or all-wood frames; No. 15 Cowan honey-extractors, and Weed Process light brood foundation. Also Bingham "Large" smokers and honey-knives; Tip-top honey-jars, and 2000 honey-leaflets with no advertising whatever on them. All goods shipped immediately. FRED E. SMITH, 6 Dartmouth St.,
Route 13. New Bedford, Mass.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee=keepers' Supplies.

Distributor of Root's goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey=boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee=smokers, Bee=veils, Pouder Honey=jars, and, in fact,

EVERYTHING USED BY BEE=KEEPERS.

Headquarters for the Danzenbaker Hive.

WARRANTED BEST QUALITY
WALTER S. POUDER INDIANAPOLIS, IND.
WARRANTED PURE HONEY
1 POUND

SQUARE FLINT GLASS HONEY=JARS.

Beauty, accuracy, and shipments without breakage are features that have justly gained for these jars the title of Standard. Material used in their make is the very finest flint glass, free from air-cells. They are tempered in large gas ovens, resulting in the toughest glassware that can be produced. They are put up in crates of 100, crates being so constructed that one can see what he is handling, and this is the secret of their safe transportation.

There is no package so desirable for honey as a package made expressly for the purpose. Experience has demonstrated this fact, and many have, by the aid of those jars, established a home market for their product instead of shipping to wholesalers at reduced prices.

Crate of 100 16-oz. jars and corks	$4 00.
Crate of 100 8-oz. jars and corks	3.00.
Crate of 100 5-oz. jars and corks	2.25.
Tin-foil caps for 16-oz. jars, per 100	.40.
Tin-foil caps for 8-oz. or 5-oz. jars, per 100	.30.
Corks for 16-oz. jars, per 100	.40.
Corks for 8-oz. or 5-oz. jars, per 100	.30.

Corks are always included with jars at above prices Tin-foil caps are not necessary, but add much to the neatness of the package. These are made expressly to my order for these jars, fit perfectly, and are all stamped "WARRANTED PURE HONEY."

Directions for putting up honey in these jars so that it will not granulate, furnished free to those interested.

For labels, see our special catalog of lables. If you are contemplating making an exhibit of bees and honey at your State or County fair let me aid you. I can furnish every thing to make your exhibit complete.

Tacoma, Wash., May 28, 1904.

WALTER S. POUDER, Indianapolis, Ind.

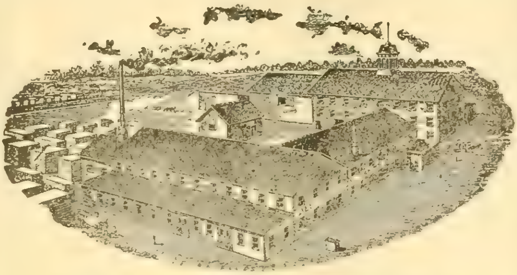
Dear Sir:—I have now been using your honey-jars for about 10 years and like them very much. You have shipped me a good many thousand, and a broken jar in a shipment is the exception to the rule. Your method of crating is ahead of anything that I have ever seen in this line, and the quality of your bottles is excellent, not an air-cell in any bottle. Will want more in the near future. Very truly yours, G. D. LITTOOY.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513=-515 Massachusetts Ave., = INDIANAPOLIS, IND.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.

I. J. Stringham, New York,

Keeps in stock a complete line of

Apiarian supplies

Colonies of Italian bees in new hive	$8.50
Three-frame nucleus colonies with Italian queen	3.75
Tested Italian queen	1.25
Untested queen	75
Silk-faced veil, best made	.40
Catalog	FREE

Apiaries--Glen Cove, L. I. Salesroom--105 Park Place, N. Y.

NOT IN THE TRUST.

The oldest bee-supply house in the East. Sells the BEST GOODS at former prices.

Send for Catalog.

J. H. M. COOK,
70 Cortlandt St., New York City.
Tested queens now ready by return mai

Pacific Coast Buyers

are directed to the announcement that
SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California,

carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundation, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added. This saves buyers $1.50 per 100 pounds in freight or 36c on each hive.

SHIPPING CASES AND CRATES.

24 lb. no drip cases, 2-inch glass, $13.00 per 100; 12-lb., $8.00. Crates to hold 8 24-lb. cases, 30c. No. 1 sections, $4.00; No. 2, $3.50. Foundation, smokers, bee-hives, wholesale and retail. Send for list.

W. D. Soper, Route 3, Jackson, Mich.

BEE-KEEPERS' SUPPLIES FOR KANSAS

Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*

A. W. SWAN & CO. Centralia, Kan.

RUBBER STAMPS.

Stamp your name and address on your letters. You will save yourself, as well as others, lots of trouble. A two-line stamp costs but **25c**. Many styles and prices given in our rubber-stamp catalog. Send for it to-day. ¶ A stamp is neater than a label on sections, etc.

THE A. I. ROOT COMPANY, Medina, Ohio.

More Room

We now occupy the greatest floor space, and carry the largest stock of goods, that we ever did before. Our specialty is

Wholesale and Retail

Lewis' Goods

AT

Factory Prices.

Dovetailed hives Wisconsin hives, Champion Chaff hives, Improved Langstroth Simplicity hives, and our new hive which we call the Acme hive. Thousands of pounds of comb foundation; millions of sections in about 30 different sizes and styles, and everything the bee-keeper needs.

Do not fail to find out all about the

ACME HIVE.

Hundreds of them already sold, this year. Catalogs and plenty of information free. Let us estimate on your order.

C. M. Scott & Co.,
1004 E. Washington St.,
Indianapolis, = Ind.

NOW IS A GOOD TIME
TO REQUEEN.

REPLACE all old wornout queens with young, vigorous, and healthy ones. We can supply such queens for 50c each, by return mail. Our strain of three-banded Italians are the bees for honey; try them. Send for price list, and see what others say. Untested queens 50c each. Tested $1.00.

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. LAWS, Beeville, Texas.

QUEENS! THE BEST can always be had at 75c each for untested; $4.25 for six; $8 00 per dozen. Tested. $1.50 each. Best breeders $5 each. Safe arrival and satisfaction guaranteed. The JENNIE ATCHLEY CO., Box 18, Beeville, Bee Co., Tex.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Special Notices by A. I. Root.

PECAN CULTURE FOR WESTERN TEXAS.

I have looked through with much pleasure a little book with the above title, by E. E. Risien, of San Saba, Texas. The part of the book that appeals to me particularly is in regard to budding the wild trees that grow in the woods so far as to cause them to produce the finest paper-shell pecans. Some beautiful half-tones are given of big trees 50 years old or less that have been budded in this way. The whole operation is described so minutely, with beautiful cuts, that almost anybody will be able to succeed. During the long seasons in Western Texas the buds will make a growth of several feet the first season, and will often bear a few nuts the season following. The book contains 55 pages, and is beautifully illustrated all through. The price, $1.00, seems to be pretty high for a book of this size; but the instructions for budding are worth several dollars to anybody who is interested in the matter. From what experience I have had I am sure that the careful details given for budding the pecan would insure success with almost any tree. Address the author as above.

SPECIAL NOTICE

Special Notices By Our Business Manager.

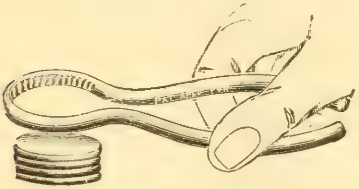
BEESWAX PLENTIFUL.

We have a larger stock of beeswax than ever before at this season of the year, and more is being offered. Price, till further notice, 25 cents cash, 28 trade, delivered here or at our branches.

PRICES FOR NEXT SEASON.

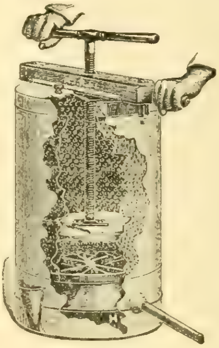
As the sale of supplies is about over for this season, and we are beginning already to make up stock for next season, as well as to get inquiries for prices, we will say that there is no prospect of any change in prices and terms from those in effect the past year. The early-order discount for cash orders before Oct. 1 will be 7 per cent. This is on goods for next season, and does not apply to shipping cases and honey-packages for current use.

CAN-SCREW WRENCH.



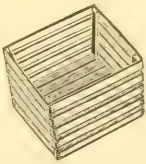
In our issue for Apr. 15 we illustrated this wrench for opening screws on honey-cans. At the time we had 1000 ordered, whtch we expected delivered within a week or two. Their manufacture was delayed so that we received them only about a week ago. Since they arrived we have filled accumulated mail orders so far as we had a record of them. If any have ordered and not yet received them we shall be pleased to attend to the matter if you call our attention to it, telling when you ordered. The wrenches are made specially for screw caps 1¾ in. diameter, and will work all right on 1⅝ screws; but on 1½ it will be necessary to put a bushing of some kind around the cap in order to make the wrench grip. No one who uses cans with screws that come within the compass of these wrenches can afford to be without one or more. After you have tried them you will wonder how you ever got along without them. Price 10 cts. each; 75 cts. per doz. By mail, 4 cts. each extra. Acme wrenches for Mason jars, 15 cts. each; 25 cts. postpaid.

GERMAN WAX-PRESS.



During the past year we have incorporated a number of improvements in this press, which while they have still further eliminated the defects which have developed from time to time, have also simplified and somewhat reduced the cost. The tools for these various changes have been expensive, and the making good of defective parts has also been expensive; yet, all things considered, we propose to put the price back to $12.00. The press can also be used as an uncapping can, as we include an attachment for that purpose. After the basket is full of cappings, put in the screw and press out the honey before the quality is injured by heating.

BUSHEL BOXES.



The season is at hand when bushel boxes are needed for handling potatoes and other farm crops. The accompanying cut shows our all-slatted box which has been used for years, and is a most popular box. It is 16 inches long by 13½ wide and 12½ deep, inside measure, holding a heaped bushel when level full. One box may be nested inside of two when empty, so they can be handled in bunches of three. As packed, there are 14 in a bunch — 2 nailed up and the other 12 in flat, with nails included. We usually make them with oak corner-posts; and, so made, the price is $1.90 per crate of 14. We have quite a stock on hand, packed ready for shipment, of all-basswood slats, no oak corners. We offer these, to close them out, at $1.75 per crate; ten-crate lots, 5 per cent discount.

AIKEN HONEY-BAGS.

We did not include these bags in our catalog this year because we wanted to see them more generally tested in different sections of the country, and proven a satisfactory package everywhere before doing so. We are prepared to supply them, and have arranged for a 1-lb. size in addition to the four other sizes sold heretofore. We are now supplied with all sizes.

1-LB. SIZE, 3½x5½.			
100	$ .65	1000	$5.50
500	3.00	5000 @	5.25

2-LB. SIZE, 5x7½.		5-LB. SIZE, 7x10.	
100	$ .80	100	$ 1.20
500	3.75	500	5.50
1000	7.00	1000	10.50
5000 @	6.60	5000 @	10 00

3½-lb. SIZE, 6x9½.		10-lb. SIZE, 10x10½.	
100	$1.00	100	$ 1.50
500	4.75	500	7.00
1000	8 75	1000	13 50
5000 @	8.25	5000 @	13 00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2 00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

EXTRACTED HONEY.

We keep on hand a large stock of extracted honey from different sources, and are prepared to supply at the prices shown below. The following flavors are usually in stock.

PRICES.—F. O. B. MEDINA, CHICAGO, OR PHILADELPHIA

Kind.	In single five-gallon cans.	1 case of 2 five-gallon cans.	10 cases of 2 five-gallon cans.	In one-gallon screw-top cans.	Case of 6 or 10 one-gallon cans.
	per lb	per lb	per lb	per gal	per gal
White Clover	8½	8	7½	1 20	1 10
Basswood	8½	8	7½	1 20	1 10
Alfalfa	8½	8	7½	1 20	1 10
Orange	7	6½	6	1 10	1 00
Amber..........	6½	6	5½	1 00	90

PACKAGES.

By far the largest part of our honey comes put up in the 60-lb. square tin cans, two cans in a case. We also get some in kegs and barrels. We agree to furnish it only in such packages as we happen to have. Unless you find price quoted for different packages, it is understood that we furnish only in 5-gallon and 1-gallon cans.

Convention Notice.

The annual session of the National Bee-keepers' Association for 1904 will be held in September at St. Louis, Mo.

Sept. 27 and 28 will be devoted to Association work and its interests.

September 29, national day. We expect many prominent foreign bee-keepers to be present on this day.

September 30, inspectors' day. Twenty bee-inspectors from the United States and Canada are counted on to introduce and discuss the diseases of bees, etc.

Mr. N. E. France will exhibit, in the convention hall, a large map of the United States, Canada, Cuba, and Europe. Each State and country will have a shelf attached to the map with a one-pound sample of each kind of honey produced. Many other exhibits of special interest will be shown.

We expect to see the largest gathering of bee-keepers ever held in this country. A more detailed program will appear later.

GEO. W. BRODBECK, Sec.

TEXAS BEE-KEEPERS FOR ST. LOUIS IN CAR-LOT.

We are making up a carload of bee-keepers to go to St. Louis convention together. Will leave San Antonio on the evening of Sept. 24, over Katy. If you are going, and wish to get with this crowd, or join it on its way out of the State, advise me. For full particulars and sleeper rates advise with H. H. HYDE, Floresville, Tex.

NEBRASKA HEADQUARTERS LOUISIANA PURCHASE EXPOSITION.

I see by the paper that the National Bee-keeper's Association will meet in this city Sept. 27. Of course, all will attend the fair; and as Nebraskans we ask that you so arrange the program that all may attend special exercises at Nebraska headquarters at 9 o'clock, when we will arrange a series of moving pictures for their especial benefit. I think you are one of the directors, and trust this request will be complied with. L. D. STILSON.

St. Louis, Mo., July 15.

WILL EXHIBIT AT THE FAIR.

ED. ROOT.—I wish to state, for the benefit of some of your readers, that I will again make a display of honey, wax, bees and queens, bee-supplies, etc., at the Kankakee (Ill.) District Fair, in September, from the 5th to the 9th. The fair had last year an average daily attendance of 15,000, which included a large number of bee keepers. I am allowed a part of the north wing of the Horticulture building, all the room required for a most complete exhibit. I expect to be in attendance all the week, and Mrs. Duby will also do her part in entertaining all lady bee-keepers. The managers of the Fair, including Secretary Senator Len Small, whom we expect to elect State Treasurer, are all very much interested in my display. Bee-keepers will be welcome.

H. S. DUBY, St. Anne, Ills.

The Southwestern Ohio and Hamilton County Bee-keepers' Association elected the following officers at their last regular meeting, June 17:

President, Henry Shaffer; Vice-president, Joseph Riestenberg; Secretary, Henry Reddert; Treasurer, C. H. W. Weber; Executive Committee, John Sommers, Benjamin Kolks, Harry Denning, Charles Weber.

The association is incorporated under the laws of Ohio, having received a charter from the Secretary of State June 17. Its object is "The promotion of apiculture in all its branches." One of the main features of the meetings is 'to teach bee-keeping from a scientific standpoint." Judging from the rapid increase in members, we may well say that the bee keepers of this section are alert as to their interests in every respect. HENRY REDDERT, Sec'y.

Cincinnati, O., July 9.

J. M. Jenkins,
Wetumpka, Alabama.

Bee-keepers'
Supplies, . .
Italian Bees
and Queens.

64-page Catalog Free.
ESTABLISH IN 1884.

PAGE & LYON,

NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

Dittmer's Foundation

RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

GUS. DITTMER, - - - AUGUSTA, WISCONSIN.

BINGHAM
SELF CLEANING
BEE SMOKER

If You Want a Smoker

That goes without Puffing—Clean, Durable, and Handy—

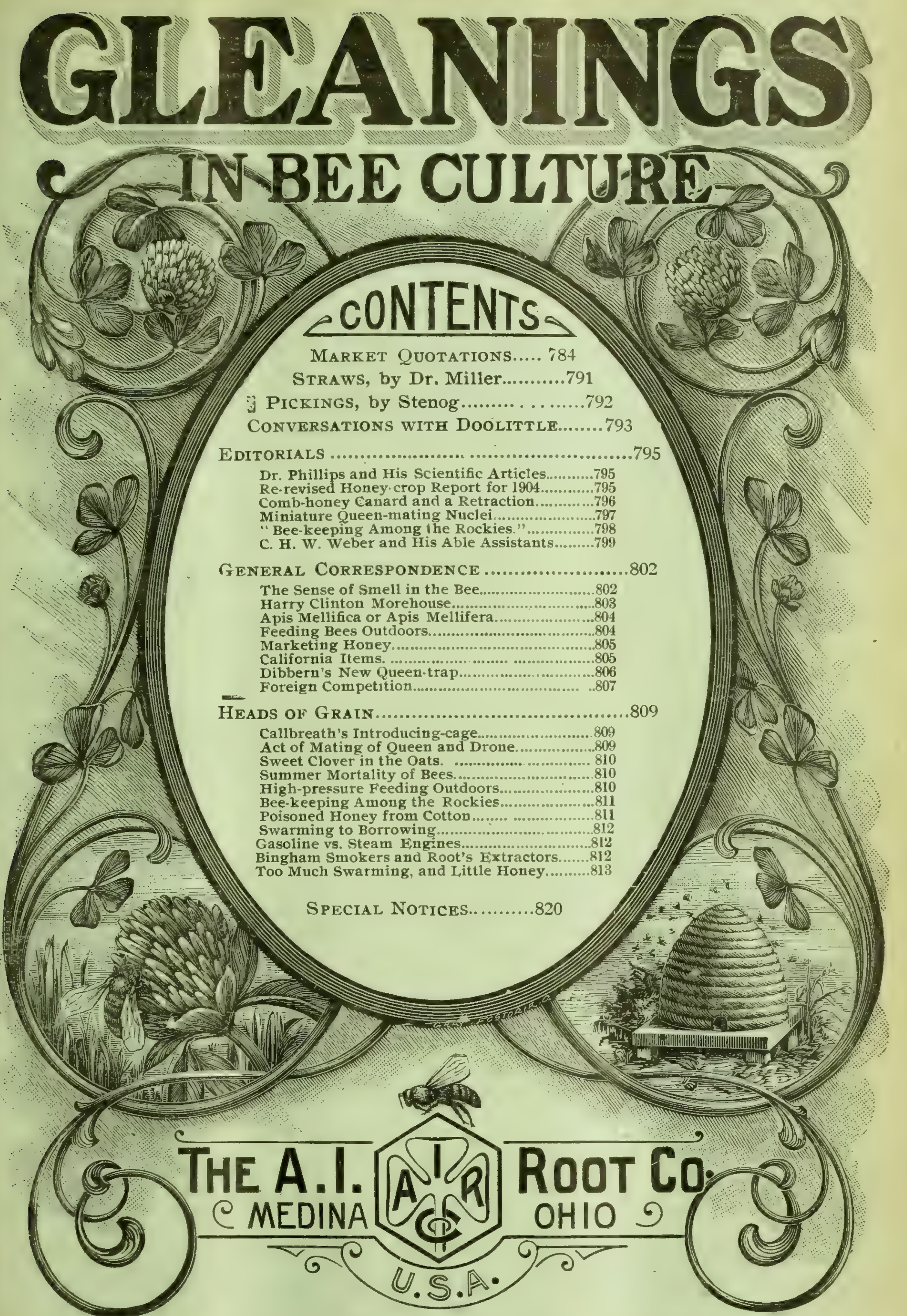
Oldest, newest, and embracing all the improvements and inventions made in smokers, send card for circular to

T. F. BINGHAM,

FARWELL, MICH.

Volume XXXII. AUGUST 15, 1904. Number 16

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

Entered at the Postoffice, at Medina, Ohio, as Second-class Matter.

GLASS

for

Extracted Honey!

We have a car load of glass jelly tumblers coming about Sept. 1st.

Get our prices; we can save you money.

Write at once giving sizes wanted so that they may come in the car.

LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

CAN SHIP TO-DAY.

¶I have the largest stock, and the best assortment I ever had at this time of year, and can fill your order the same day it is received. I have more Hives, Supers, Sections, and Foundation, Shipping-Cases, and every thing you may need than I can possibly sell this season.

¶But don't wait, send in your orders promptly, and they will be filled promptly.

YES, THEY ARE ROOT'S GOODS

AND SOLD AT ROOT'S PRICES.

¶If you have not my 36-page catalog, send for it, free. Beeswax wanted, either for cash or trade.

GEORGE E. HILTON,
FREMONT, MICH.

Hurry Up Orders

FOR

Hives, Sections, Foundation, etc.

The supplies you order this month you want "right away"---"as soon as possible" That is what we are doing for others, let us do it for you. :: :: ::

For Root's Goods in Michigan---In a Hurry.

M. H. HUNT & SON, BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Queens Now Ready to Supply by Return Mail; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above. Prices for Untested, during June, one 75; six, $4.00; twelve, $7.50.

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Cincinnati.—The stock of last year's comb honey is now nearly all cleaned up The prices obtained were for fancy water white 12½@13½. The new stock of same is now more plentifully offered; too early to tell what the market might do in prices. Extracted is in fair demand, and I quote same as follows: Amber, in barrels, 5¼@5½; in cans, ½c higher. Water-white alfalfa, in cans, 6½; fancy white clover, in barrels, 6½@8c. Beeswax more plentiful, brings 28c per pound.

C. H. W. Weber,
Aug. 8. Cincinnati, O.

Buffalo.—Demand has not started for new honey here. We are offering it at lower prices to attract attention Fancy white comb, 14@15 A No. 1, 13@14; No. 1, 12@13; No. 2, 11@12; No. 3; 10@11; No. 1, dark, 11@12; No. 2, 10@11. White extracted, 5½@6; dark, 5@5½. Beeswax, 30@32.

W. C. Townsend,
Aug. 8. Buffalo, N. Y.

Schenectady.—There is considerable new white honey arriving in our market, but many dealers carried over some honey from last season, and will not buy until this old stock is worked off, so demand is light. We quote white comb 13@15; extracted, 6@7. We request all parties intending to make us a shipment of honey to write us for particulars in regard to packing, marking, etc., before doing so.

Chas. McCulloch,
Aug. 8. Schenectady, N. Y.

St. Louis.—Since our last of July 8th this market has not undergone any change in the situation on honey. We quote as follows: Fancy comb honey, 12@14; A No. 1 comb honey, 11@12; No. 1 comb honey, 10@11; No. 2 comb honey, 8@9c; No. 3 comb honey, 7@8; extracted, 5@5½ in cans, and 4@4½ in barrels, for Southern, and inferior grades sell at less. There are no arrivals of new white-clover or Colorado alfalfa clover honey as yet. Beeswax is selling at 28@30, according to quality.

R Hartmann & Co.,
Aug. 8. 14 So. Second St., St. Louis, Mo.

Kansas City.—The receipts of comb honey are a little better and the demand is increasing. The market for the last month has been $2.75 a case for fancy white comb honey, but look for an advance in the near future Extracted slow sale; beeswax moving fairly well at 30c a lb.

C. C. Clemons & Co.,
Aug. 8. Kansas City, Mo.

Chicago.—A little new comb honey is being offered at 12@12½ per lb. for No. 1 to fancy. Extracted, 6@7 per lb. for white, and 5@6 for amber. Beeswax, 28 per lb.

R A Burnett & Co.,
Aug 8. 199 South Water St., Chicago, Ill.

Albany.—Honey demand improving some and quite liberal offerings from the country Prices are not sufficiently established yet to quote certain prices. We are selling some white comb at 15@16; mixed and medium grades, 13@14 Extracted – some call for at 6 for buckwheat and mixed, and 7 for white. When the summer resorters get home hungry as usual and trade resumes its normal condition we look for good demand for honey at a good price. Beeswax, 28@30.

MacDougal & Co.,
Aug. 12. 375 Broadway, Albany, N. Y.

Philadelphia.—Some comb honey has been arriving in this market the last week, but hardly enough to fix the market price Every thing depends on the crop, which is still uncertain. Some few sales made of fancy comb at 16@17; No. 1, 14@15. Extracted honey arriving quite freely and selling at 7@8 for fancy white, and 6@7 for light amber. Beeswax, 26. We are producers of honey and do not handle on commission.

Wm. A. Selser,
Aug. 11. 10 Vine St., Philadelphia, Pa.

Denver.—New comb honey is coming in rather slowly. Old stock all cleaned up. We quote No. 1 white comb at $2.75 per case of 24 sections; No. 2 at $2 50 White extracted, 6¾@7½. Beeswax wanted at 22@26 per pound according to color.

The Colorado Honey Producers' Ass'n,
Aug. 11. Denver, Col.

For Sale.—25 bbls. fancy extracted white-clover honey. Write for prices, stating quality and kind of package desired.

Emil J. Baxter,
Nauvoo, Hancock Co., Ill.

For Sale. Several tons of choice extracted clover honey, put up in kegs holding about 160 lbs. net on board the cars at this place, at 6 cts. per lb.

E W. & F. C. Alexander, Delanson, N. Y.

For Sale.—About 7000 lbs tupelo honey, in 12-lb. square tin cans, 6 to case per case, $4.50; per 100, $72 00, f. o b. here. R. L. Tucker, Wewahitchka, Fla.

WANTED
FANCY COMB HONEY
In No-drip Shipping Cases.
Also AMBER EXTRACTED
In Barrels or Cans.
Quote your lowest price delivered here. WE REMIT PROMPTLY.
THE FRED W. MUTH CO.,
No. 51 WALNUT ST., CINCINNATI, OHIO.

FOR SALE.—Light-colored honey, fine flavor, barrels, 7c; cans, 8c; amber, 6@7. Sample, 10c.
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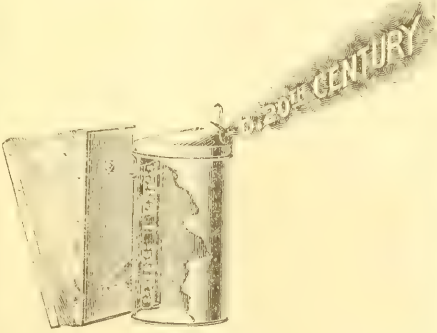

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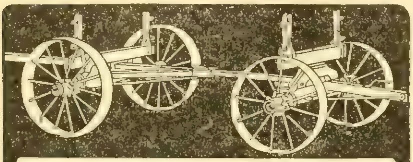

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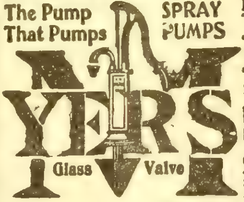

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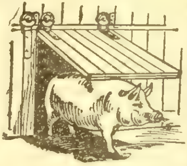

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He Isn't Worrying

about where his bread and butter is coming from. So writes E. D. Townsend in the August issue of the Bee-Keepers' Review, and he gives the reason why. He has been a bee-keeping specialist for several years, making his living solely from bees, and he tells how he has done it, and shows how any extensive bee-keeper can be almost absolutely certain of getting at least a fair crop of honey each year. His article on this subject is the most encouraging reading for a bee-keeper that I have ever read.

Send ten cents for the August issue of the Review, and the ten cents may apply on any subscription sent in during the year.

W. Z. HUTCHINSON, Flint, Mich.

WHAT THEY SAY.

W. H. PUTNAM:—I delayed answering your letter until I had read the June number of the *Rural Bee-keeper*, and must say, as a bee-keeper of 22 years' experience, I am more than pleased with it, regardless of the assertions of some that the publishing in this line was already overdone; and if the improvements continue it will certainly be second to none within its first year of publication. I consider the June number alone worth several years subscription to any practical live bee-keeper; and I will say, let the good work go on and on. You have a good field; and the fact of our having a bee journal published in our own State should be a lasting stimulant to all bee-keepers of Wisconsin and the Northwest, and 50 cents certainly can not be invested to better advantage. You may send me some more blanks. Yours truly,

Hillsboro, Wis. ELIAS FOX.

Send 10 cts. for three back numbers or 50 cts. for one year.

W. H. PUTNAM, River Falls, Wis.

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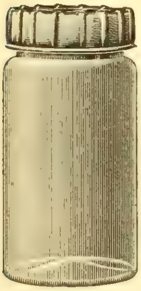

We have found a new glass jar for one pound of honey, which we think surpasses any other style we ever offered. It has a glass top which screws on to the glass jar with a rubber gasket between. The joint is on a taper so that, the further you screw the cover on, the tighter it makes the joint. It can be sealed absolutely air-tight; has no metal to rust or corrode. It is about ¾ inch higher than the No. 25, which improves its appearance. We sell them at the same price as the No. 25, and have a carload in stock ready to fill orders. We first learned of this jar nearly a year ago, but have said nothing about it until we had the stock in hand ready to supply. We still have some No. 25 in stock for those who may prefer to continue with it We believe, however, the Simplex jar will take the place of the No. 25.

THE A. I. ROOT Co., Medina, O.

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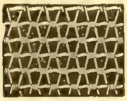

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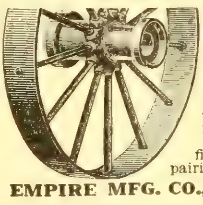

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Illustrated Semi-Monthly
Published by The A. I. Root Co.
$1.00 per Year
Medina, Ohio.

Vol. XXXII. AUG. 15, 1904. No. 16

Stray Straws

By Dr. C. C. Miller.

You know that oftentimes bees will start afresh to build cells right on top of a sealed surface if there is room for it. I wonder if you also know that the bees will never uncap honey that is under cappings upon which they have started the second tier of cells.

Comb-building is likely to stop when a colony becomes queenless; and if any comb is built it will be drone comb. The building of worker comb is a pretty good sign that a queen is present. But worker comb may be built in a queenless colony *if weak enough.* [Correct so far as we can observe at Medina.—Ed.]

A foreign journal—I don't recall which—gives as one way of improving stock the plan of leaving undisturbed all queen-cells in a colony which has swarmed, and then returning after-swarms as fast as they issue. If all cells but one are cut out, that one which is left may be the poorest in the lot: if all are left, and after-swarms returned, there will be a battle royal each time, and finally the best queen of the lot will remain victor.

After slumbering quietly for years, that foolish canard that, before sealing their honey, the bees sting poison into it and then use their stings as trowels to cap it over — a wild imagining with no sort of basis in fact—I say that foolish canard has again come to light. The *Western Bee Journal* prints it, apparently in sober earnest. Bro. Adelsbach, better tell your readers that the item should have come under the head of romance.

In reply to J. A. Phillips, the same candy used in introducing queen-cages is also used for feeding bees. Take perhaps an eighth as much best extracted honey as the candy you want; heat, but don't burn; mix in all the powdered sugar you can; then knead in more sugar on a bake-board till you make a stiff dough; let stand two or three days, and, if it has softened any, knead in more sugar. [This accords with our experience.—Ed.]

To find from which colony an after-swarm came, J. Georges gives this in *L'Abeille Alpine:* Early next morning, before bees are flying, take a hundred or more bees of the swarm, shut them in a tumbler with some flour, tumble them about till they are well floured, then free them and run to the apiary to see which hive they enter. "Early next morning" is perhaps new. [This may be a very useful kink to remember. Sometimes it is desirable to know whence the bees come.—Ed.]

H. C. Morehouse says in *Western Bee Journal* that the rule to put on supers when the bees begin to whiten the combs at the top is about ten days too late out West. Isn't it too late anywhere? Do they ever put white wax on the upper part of combs till crowded for room? and will not as much crowding as that go a long way toward starting them to swarm? [It all depends on what is meant by "the bees begin whitening the combs." I fear the language is liable to be misunderstood by beginners, with the result that they wait too long, and swarming is the result. Perhaps our text-books should be a little more explicit.—Ed.]

No question about it. Swarthmore, Laws, and others in the miniature fertilizing business have led to the settling of the fact that virgins may be fertilized in a nucleus without any brood, and with a much smaller number of bees than we have been in the habit of supposing necessary. The question is, will the queens be as good as those reared in the old way? Many years ago I reared queens in very weak nuclei, and the queens were worthless. But then the whole business, from the starting of cells to the laying of the young queen, was done in the same weak nucleus. Up to the sealing of the cells, and perhaps to the emerging of the virgin from the cell, no colony can be too strong in which to have the work done. Will it do any better to have the succeeding work done without a full force of bees? You have succeeded at Medina in getting queens fertilized with so few bees that the whole force could be put in the shipping-cage. But what kind of work will such a queen do at laying? Do you know any thing about it? I *think* that they will be all right. Perhaps the wish is father to the thought. At any rate I'll probably know something about it some of these days, for I have a queen which will be tested in a full colony which was fertilized and began laying with probably not more than a dozen bees to give her aid and comfort.

I've had quite a number of queens fertilized without any brood, and with only enough bees to man fully a section of honey. I used common hives. In a very few I used two brood-combs containing a little honey. In the others I used a section of honey in a wide frame, either alone or with a dry brood comb. From a colony with a laying queen I took a frame of brood with adhering bees, shook into the nucleus enough bees to cover well the section, dropped in a virgin not more than a day old, closed up tight, and didn't open the entrance for 60 hours or more.

"Wouldn't these bees, not being queenless, kill the virgin queen?" Not a bit of it. A virgin queen will be kindly received in *any* colony, even one with a laying queen, *if the virgin be young enough.* (If a laying queen is present the virgin is likely to be killed after she is two or three days old). It's less trouble to give a ripe cell, and so far I like it fully as well.

I think the queens are slower about laying than with stronger nuclei, but the losses are hardly more, up to the time of laying. But unless confined by excluder, the young queen is likely to skip soon after beginning to lay.

A curious thing is that robbers do not trouble these diminutive colonies, although trying to get under the covers of strong colonies. Only one of the little fellows has been robbed out, and that may have been after absconding. The reason may be the smallness of the entrance, and the great distance from the entrance to the section of honey. [It is to be feared that you and some others of our readers have formed some misconceptions regarding these miniature nuclei and the scope of their usefulness. See editorial elsewhere.

I will say right here that these little lots of bees will not prove to be satisfactory unless they have brood, a little feeding, and they must be handled without smoke the greater part of the time.

Queens lay in our miniature nuclei quite promptly — no slower, I think, than in the larger ones. Note the important requisites in the use of these little mating-boxes.

A year ago, when we used smoke in opening these little boxes we had some trouble from robbing; but it may be that these small lots of bees are too insignificant to attract very much attention. We have had only one case of robbing from them, and then it was when an inexperienced operator went to handling them over with smoke.—Ed.]

Pickings from Our Neighbors' Fields By "Stenog."

Bienen Zeitung says that, as the queen lays only worker eggs the first year of her life, the finest combs are such as are made by first-year queens.

* * *

Bienen Zuechter says fermented pollen is often the cause of spring troubles among bees. A writer says a bottle of good bee-feed, in which a few drops of fruit brandy have been mixed, will cure the trouble. Quite likely the efficacy of the brandy is all imagination; but if confined to the bees the risk is not great.

* * *

Some new way to destroy ants comes up with commendable regularity. A German writer says, in *Bienen Zuechter*, if a hole is made in an ant-hill, and a lump of camphor put in and tamped over, the ants will seek new quarters. A good dose of borax poured in will answer the same purpose, and costs practically nothing. At times ants are annoying to bees, and their hillocks are unsightly at best.

* * *

A writer for a German bee journal, livin Calabria, Italy, says he has for years used lemons to attract swarms. He says, "Our bee-keepers attract their swarms in a few minutes, and get them where they wish, be it in a log, a hive, a box, or even in their hat. To do this they simply rub some bits of lemon or lemon leaves in the places designed for swarms. Some use essence of lemon." There's no doubt that bees like the odor of lemons. Who doesn't?

* * *

A friend wisely suggests that, if some of the energy that is now used to get editors to recant who have been guilty of saying that comb honey is mostly manufactured could be used in informing said editors beforehand in regard to the facts, the canard would not see the light so often. It occurs to me that, if the General Manager of the National would put this whole matter in the form of a pamphlet, illustrating fully the use of foundation, and giving a history of the canard in question, and send a copy to the leading journals of the great cities, it would prevent the insertion of stories so inimical to bee-keepers. The cost would be slight, and the novelty of such a bulletin would immediately arrest attention. Mr. Benton's letter to the Pittsburgh *Gazette*, reproduced in this issue, would be indispensable in this connection. The fact is, no man of good judgment would believe the story after having had the matter of comb foundation fully explained to him, together with the further fact that bees can produce combs incomparably cheaper than man. No editor would print a manifest absurdity of this kind if he knew all the facts. On the other hand, most of them dislike to make an explanation after the fault has been committed. They would rather have it forgotten. When a man is so nearsighted as to put salt in his coffee, in place of sugar, he is very apt to say, rather than have the laugh on him, "I always take it so." Post the editors. Prevention is better than cure.

* * *

In the July number of the *Review*, Mr. Hutchinson has an excellent editorial on how to treat those who have published the senseless stuff about manufactured(?) comb honey. He says, "Above all things, don't be abusive; don't bluster; don't threaten." That's good advice; but it is rather hard to follow it when the statements are so palpably false, and especially, as in the case of the Massachusetts professor, the writer attempts to maintain his point. As to the origin of the story, Mr. Hutchinson says Prof. Wiley "deeply regrets his indulgence in this 'scientific pleasantry,' and is doing all he can for the good of bee-keepers; but this does not undo the mischief he has done." There are good reasons for thinking that this canard has nearly run its course. With two prominent journals retracting, it will be easy to get more, and then all will come over on our side in a bunch like a flock of sheep.

* * *

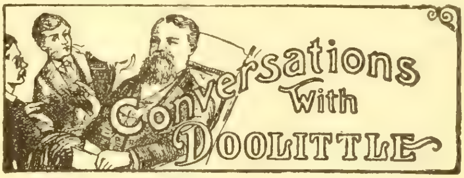
The bee-keeper of England are engaged in a warm controversy as to whether they shall endeavor to have a foul-brood bill passed by the British Parliament for their benefit. The arguments against such a measure seem ludicrous in view of the marked benefits derived from such legislation in Canada and the United States. The ravages of the diseas in England seem to be rapid and severe according to the British Bee Journal. One writer says it would cost $2500 to get such a bill through the House of Commons, and doubts the possibility of their getting for a long time, in the shape of a law.

* * *

While tendering our votes of thanks to the poets, song-writers, etc., of beedom, don't forget artist R. V. Murray, who has done more than any other man living to delineate every thing pertaining to bees and hives. I am frequently surprised at the rough sketches of hive-fixtures that are sent him, and the new dress in which he returns them.

* * *

What W. K. Morrison says in this issue about Haiti is worth remembering. It is a pity that that beautiful island should be given over to anarchy and scenes of bloodshed that "stagger humanity." What a place for honey if they had a stable government like this!



HOW TO FIND A QUEEN.

"Good morning, Mr. Doolittle. I see by the looks in your apiary that your bees, like mine, are very strong in numbers."

"Yes, Mr. Jones, there are lots of bees in the hives now, as is usually the case during and just after the basswood flow."

"Well, what I want to know is this: How do you find the queen of such a colony as this one, where the hive is apparently as full of bees as it can stick? In short, tell me how to find a queen at any time of the year."

"To the accustomed eye of the practical apiarist, prolific queens are quite easily found, especially if the bees are of the Italian race, or the time of the year is about fruit-bloom; but a virgin queen of the black or hybrid race often elludes the watchful eye of an expert when he is looking for her."

"But I am not an expert. Have you no rules you go by?"

"I should hardly want to say that I had. But to find a prolific queen the time to look for her is on a nice day when the bees are at work in the fields, or between the hours of 9 A.M. and 3 P.M. If you look at such times you will find her, more often than otherwise, on one of the two outside combs which have brood in them."

"Then you don't mean the outside combs in the hive?"

"No, not unless the outside combs in the hive contain brood. If they do, then look for her there. If there are only five frames in the hive having brood in them, then she will be liable to be found on one of the two outside combs having brood in."

"But how am I to tell about where these outside frames of brood are without hauling out a lot of combs that have no brood in, and set the queen to running away?"

"You do not need to handle the combs so roughly that you set the queen to running, even should you not take out the right frame the first time. But if you will allow the bees to come up between the frames after you have blown a little smoke over them in opening the hive you will soon be able to locate the outside frames of brood by the amount of bees between the ranges of combs, unless the hive is full of bees and brood."

"I was told, that in the morning or near sunset was the best time to handle bees."

"This was a mistake, no matter what you are handling bees for, and especially when looking for a queen. Where I am obliged to work early or late, I rarely find a queen on the outside frames of brood, but generally in the center of the brood-nest. But remember we are talking of a colony whose brood-nest has not been interfered with. If an empty comb is inserted anywhere in the brood-nest, the queen will be quite likely to be found on this comb 24 hours later; but in such case the brood-nest would not be in a normal condition."

"Then just at sunset is not a good time to look for queens? Here is a part of my trouble, for I had looked near sunset."

"Near sunset does not give a good light, even were the hive not crowded with bees at that time. To find any queen, the best time to look is from 11 A. M. to 1 P. M., as at that time the most bees will be in the field and out of the way; and if your hives face south, as is generally the best way to face them, the sun will shine quite directly between the combs; and the light thus striking them will show you the queen much better than at any other time."

"That is a point I had not thought of."

"This is a great help; and if you sit or stand with your face to the west before noon, and face east after noon, the sun will not shine in your face, and you will also be looking on the combs where the rays of the sun light every thing up."

"This is also a new thought, and I should think it would help much; for when the sun shines on the front of my veil it interferes very much with my seeing well."

"That is right; and you should always have a light box with you, about two inches wider than your hive is wide; and when opening the hive, do it as carefully and with as little smoke as possible; for if you are careless, and jar the hive much in opening, the bees will get angry, while the queen becomes excited and runs about and off the place where she was laying, sometimes into the corners of the hive, or clear out of it entirely."

"That shows me another of my mistakes, for I have at times gotten the bees so angry by my clumsy handling that I have smoked some colonies till the most of the bees ran out of the hive; but I did not suppose the queen would ever run out. But just tell me the whole proceedings of finding any queen in a hive that is full of bees as they are now."

"About eleven o'clock, having opened the hive so carefully that the bees hardly know they have been disturbed, and as carefully removed the first frame on the side of the hive next to you, look it over for the queen. Having satisfied yourself that she is not there, set the frame on the further side of the box from you, and take out the next from the hive, carefully looking it over and setting it in the box as you did the first. On lifting the next frame you will have plenty of room so you can readily look down into the hive and on the face side of the comb next to you; and as the sun lights up all as 'plain as day,' if the queen is on the face side of that frame you will see her at a glance as she attempts to run around to the opposite or dark side of the comb, as nineteen out of every twenty queens will attempt to do when the strong sunlight strikes them. If you do not see her, immediately swing the frame you have in your hands so the sunlight will strike the opposite side of the comb, or the side that was from you when you lifted it from the hive, for the queen will be on one of these dark sides, if anywhere. Now set this comb in the box, if you have not seen the queen, and proceed in the same way with the next, and so on till you find the queen, or all of the frames are out of the hive and in the box. It is a rare thing I miss in finding the queen in going through a hive like this, no matter what the queen, and whether laying or otherwise; and if, in the prolific part of the season, or before the hive is full of bees and brood, I do not usually have to lift more than three combs at most before I find her, if I keep in mind that she should be on one of the two outside combs of brood."

"But what about that case where you do not find her before you have got all of the combs in the box?"

"If from any accident I have jarred the hive, or got the bees uneasy or smoked too much, I now look among the bees that are left in the hive to see if she is there; and if I do not find her I proceed to set the combs back in the hive again, from the box, in the same way they were set from the hive out. But there is this difference: The box being wider than the hive, I can look on the dark sides of the combs when lifting the first comb from the box, so that I do not have to look the first two combs all over while in my hands, as I did when taking from the hive."

"Do you ever miss finding the queen in setting back from the box?"

"I remember only one such case during the last five years."

"What do you do where you miss in finding both times?"

"Where such a thing as a failure should occur, the hive is closed, and a trial is made some other day."

"How fast can you find them, on an average?"

"In the spring of the year, when seeing that all have their wings clipped, it takes but a short time to go over the whole apiary. But at this time of the year it is more slow. I went to the out-apiary a few days ago to look for and clip some queens where I had given cells three weeks previous, and I made a record of nine in an hour, with hives overflowing with bees, and supers to take off and adjust again. I wish I could do as well at any time of the year."

Editorial
By E.R. Root.

DR. PHILLIPS AND HIS SCIENTIFIC ARTICLES; THE SENSE OF SMELL IN BEES.

I HAVE asked Dr. E. F. Phillips, of the University of Pennsylvania, to prepare several articles detailing in a popular way some of the things he has learned in the line of scientific bee-lore here at Medina during the last few weeks. He is a trained zoologist in the regular employ of the university which he represents; and I apprehend that some of his investigations will be of great value to bee-keepers. Some of the things he tells me on the bee's sense of smell have been quite interesting to me, and I believe they will be equally so to many of our readers. In accordance with my request he has prepared two articles, the first of which appears in this issue. These studies are not without their practical value. I believe it will pay our honey-producers as well as our queen-breeders to read these very carefully, more particularly as they will enable us to explain many of the phenomena connected with our pursuit, and perhaps put us in position whereby we may be able to improve our methods and introduce shorter cuts.

Dr. Phillips is very conservative, careful, and conscientious in his work. Trained scientist that he is, he is very slow at drawing conclusions, and in one case that I know of he took thousands of measurements before he formed an opinion. He has read all the bee literature that bears on the subject he has been investigating; and in this connection it may be interesting to know that he bestows unstinted praise on the naturalist Huber, whom he regards as having been one of the most accurate observers who has ever written on bees, especially their general habits, for Dr. Phillips has, in addition to his wide reading, been sitting down before an observatory hive for hours and days at a time, to get his information. I am not at liberty to make public some of his discoveries, but these will appear in due time, or as soon as he is prepared to give them to the public. He is not much given to wild speculations, and the reader need have no fear that he will launch any thing on the public like the Dickel theory, although he says Dickel himself, in spite of his erroneous conclusions, made some important observations.

A RE-REVISED HONEY-CROP REPORT FOR 1904.

REPORTS have been coming in from all sides and from all parts of the country. There is not much to say in addition to what has already been said, except that the crop in the Northwest, including Minnesota, Iowa, and Wisconsin, seems to be very much lighter than it was a year ago. It also seems to be quite apparent that the aggregate crop for the entire United States will be lighter than it was last season.

While we have had reports from honey-producers from various parts of the country, and endeavored to summarize their statements, it seemed to me it might be well to get a statement from the commission men and buyers in the principal markets, and accordingly I drafted the following letter:

Dear Sir:—We are anxious to get at the amount of honey (comb and extracted) that has been produced this year. While it will be impossible to get the total aggregate, we think we can, perhaps, get a comparative estimate of the yield for 1904. We should be glad to have you send us a brief report, based on the best information that you may have, of the probable amount of honey that has been produced this year as compared with last. This you can determine somewhat by the number of offers you have had to furnish honey, and the aggregate amount as compared with last year.

We are of the opinion that we had a large crop of honey throughout the country last season; but many bee-keepers held back until after the holidays, expecting a rise in price. This gave a false estimate of the amount of honey on the market at the beginning of the season. Then when these crops were unloaded it produced a slump. We should like to get from you a brief statement of two or three hundred words, giving your impressions of the crop for 1904, based on information that has come to you from various sources.

THE A. I. ROOT COMPANY.
E. R. Root.

The replies will speak for themselves.

We have received more honey this July than we did last, but the outlook for a crop is not as good as last year. From what we can learn from Iowa and Missouri there will be from a fourth to a half of what honey there was last year, taking it as a total; but as the stands are more in some sections than in others it is hard to estimate exactly what the crop conditions are; but we believe the above statement on Iowa and Missouri will about cover it. We understand from some sources, however, that Kansas has a big crop, but a great deal of it will depend on the late run of honey.

C. C. CLEMONS & Co.,
Aug. 3. Kansas City, Mo.

It is impossible for us to give you any correct figures in regard to last year's crop of comb and extracted honey, as the market, the entire season, has been in an irregular condition. There were large quantities of comb honey carried over of the 1902 crop, and almost every dealer in this market was overstocked on the article, and little new comb honey was brought here in carload lots. We, at least, don't know of a single car which came to this market. The situation was almost the same on extracted honey, and there is some of the 1902 crop of extracted honey held in this market yet. The offerings of honey were numerous last year, but more so this season for new honey. The demand is very limited as yet. Quotations are more or less nominal.

R. HARTMANN & Co.,
Aug. 4. St. Louis, Mo.

It is a little too early to give a fair estimate of the honey-crop for this year. It is, however; a fact that so far the bees have done very little. To start with, a great many bees did not get through the very severe winter; then the clover-blossom was a failure, with a good deal of wet weather to hinder bees from working. They are now working in basswood, which promises to yield well; but on the whole we can not expect more than half an average crop. So far as I can learn, there is very little honey carried over from last year, so we think prices will be a little higher than last year. Honey, however, is an article that will be used only at a certain price. When it goes beyond that, other things are used in its place. Therefore, in spite of the short crop we do not think it will command more than an ordinary price.

M. MOYER & SON,
Aug. 4. Toronto, Can.

So far as I can learn at this time, the crops of honey around here are about the same as last year. Some bee-keepers claim, though, that this year's crop surpasses last year's by a good deal. The offers so far have been fully as large as the year before.

C. H. W. WEBER,
Aug. 5. Cincinnati, O.

I returned home to-day from a ten-days' trip in Michigan. It is too early to know very much about the new crop. I think the crop will be a pretty good average one. I get some reports of short crops, but think there will be plenty of honey, and do not expect prices will be high. I am afraid prices will not be high enough to cause a free movement of the crop early, and late in the season prices are almost always lower. W. C. TOWNSEND,
Aug. 8. Buffalo, N. Y.

I here give a brief summary of the honey crop in this State, so far as we have reports :

Northern Colorado, a fair crop if conditions remain favorable from now until close of season.

Arkansas Valley, above Las Animas, same as Northern Colorado.

Arkansas Valley, below Las Animas, poor crop.

Delta and Montrose Counties, very light crop.

Mesa County, good in some places, below average in others.

Southwestern Colorado will have a fair crop.

It is too early for this locality to give a reasonably accurate estimate of our honey. There is not much honey taken off yet, and second crop of alfalfa is just commencing to bloom. Whether we shall get any honey from it remains to be seen.

THE COLORADO HONEY PRODUCERS' ASS'N.
F. Rauchfuss, Mgr.,
Aug. 5. Denver, Col.

While we have not all of our reports in as yet, we think we can form a pretty good idea as to the outcome in different localities. Southern California claims a total failure ; but we understand that about 100 to 125 cars were carried over from last season. Central California, or the San Joaquin Valley, expects to have a usual crop, the same as Arizona. Texas reports a light crop, as well as Louisiana. In Georgia the crop seems to be good ; in Florida we think they had the largest crop they have had for years, especially in the western part, as we have received more honey from there this season, and have had more offerings than ever before. We have no reports as yet from Colorado, Utah, and those points, but have reports from the middle West which would indicate a rather short crop, mostly on account of the loss of bees. Vermont reports a fair crop, so does Pennsylvania ; and so far as New York is concerned, the reports vary from a failure to a large crop. In some sections they have very little honey, while in others they have more than last year, and better quality in spite of the loss of bees. As a whole, while the crop is not as large as that of last year we think that a fair average crop has been produced east of the Rocky Mountains. HILDRETH & SEGELKEN,
Aug. 3. New York.

Replying to your request for information regarding the honey crop, we find it somewhat difficult to get the information, several bee-keepers, refusing to answer questions of that nature on account of sharp dealers who have used such information to the injury of the bee-keeper. From reports received so far, we have no doubt there will be considerably less honey this season than last. Several report very good yields from what bees they have left; but in most cases about half died during the winter. In our locality bees have done well, and are still at it. The season opened late, but it is also holding out later than usual. Our own bees are in fine shape. Our loss was 10 out of 85 during winter; 5 afterward, owing to bad spring, queenlessness, etc. We have several colonies four stories high, ten-frame hives full to the top. Our bees all wintered outside. From down east we have received several good reports, although the loss in bees will make the honey crop short of last year in almost every case. We are with you every time for *honest reports.*
Toronto, Aug. 6. E. GRAINGER & CO.

In regard to the honey crop of 1904, we wish to state that, from the information we have received, and considering the great loss of bees, the honey crop throughout the lake region will be about half what the crop was for 1903. There has not been a season, according to our reports, where bees have built up and increased as they have this season; and while the crop will not be nearly as large accordingly through this section of the country, yet it is of excellent quality. However, as in the case of last season, a great many bee-keepers (anticipating a shortage of the crop through the loss of bees last winter) are holding their crop, expecting a large price later in the fall; and we desire to state that the market here at the present time remains the same as last season, and the receipts of fancy comb and extracted honey are equal to the demand. We have had very little trouble as yet in securing what fancy and No. 1 grades we can use; and it has been our experience that honey brings a much better price early in the fall than it does later in the winter, and we think the majority of bee-keepers are making a great mistake when they hold their honey for an unreasonable price. GRIGGS BROTHERS.
Toledo, O., Aug. 5.

Replying to your inquiry in regard to the amount of honey produced up to the present time in our section of New York, we would say that we believe from information received from producers, bee-inspectors, and others, that the crop is at least one quarter larger than last year, and of fine quality. One producer alone, near us, is reported to have eighteen tons of white extracted already, with buckwheat yet to hear from. Of course it is too early to form any estimate on the latter crop, as so much depends on weather conditions. Last year the yield from buckwheat was unusually small—this year it may be large. We hope it will, for the sake of our friends the bee-keepers.
Schenectady, N. Y., Aug. 2. CHAS. MCCULLOCH.

Northern New York, 25 per cent more, and better quality.

Southern New York, poor quality, the same as last year.

Eastern Pennsylvania, 25 per cent over last year.

Delaware and Maryland, about the same.

Michigan, same as last year.

Wisconsin, uncertain but present reports show about the same.

Illinois, somewhat less than last year.

Philadelphia, Penn., Aug. 3. W. A. SELSER.

While, possibly, some of the writers may be a little biased in their statements, yet I think that, in the main, what they have to say is inspired with the desire to give the actual facts so far as they know them.

COMB-HONEY CANARD WITH A HANDSOME RETRACTION.

ON page 745 of our last issue we referred to a sensational article published by the Pittsburgh *Gazette* for July 24, to the effect that artificial combs were made of petroleum, and that artificial comb honey looked so much like that produced by the bees that the two could not be told apart, even by experts. We immediately sent in our protest, as will be remembered, and urged our readers to do likewise.

I am pleased to announce that, in the issue of the aforesaid journal for Aug. 7, appears a hadsome retraction, closing with a strong letter of denial from Mr. Frank Benton, of the Department of Agriculture, Washington.

That our readers may see it pays to follow up these things closely we publish it, headlines and all.

It is evident that the force of numbers backing up a letter from a government official had its effect. We asked one of our subscribers, Mr. E. R. Munn, who expected to be in Pittsburgh, to call and see the editor of the Pittsburgh *Gazette*. In the course of conversation that individual remarked, "By the way the letters are coming in, you bee-men must stick together better than the Masons." You see, therefore, dear readers, it pays to "stick together," and it pays to deluge these offending editors with letters. Coming in one at a time or dozens at a time or from hundreds at a time, they keep that functionary in a state of nervous excitement until he is glad to stop the "howl" by publishing a correction. Here is the extract:

RUSH TO DEFEND BUSY LITTLE BEE.

STATEMENT THAT HONEY-COMB IS MADE FROM PETROLEUM PRODUCTS RAISES BREEZE.

Many Letters are Received. United States Department of Agriculture Writes The Gazette that Nothing has so far Supplanted the Bee in Producing Honey that is Fit to Eat.

The busy bee has many defenders. They won't stand for any statements that the bee is to be put out of business by any unprincipled manufacturer who says he is able to make artificial honey-comb or artificial comb honey. This defense of the bee is the result of an article printed in The Sunday *Gazette*, July 24, in which it was stated that honey-comb is made from the refuse of petroleum.

Hardly had the paper been printed before letters of protest reached *The Gazette*. They were from owners of bees and manufacturers of bee-supplies. All voiced the same statement, that the bee and its owners had been grossly libeled. And eventually your Uncle Samuel got busy, and the following letter was received from Frank Benton, M. S., Agricultural Investigator, in charge of Apiculture, Bureau of Entomology, Department of Agriculture:

To the Editor of *The Gazette:*

Dear Sir:—Artificial honey-comb is not made from oil, petroleum, paraffine, wax, nor any other substance; and it is absolutely impossible to duplicate natural honey-comb in such a manner as to deceive any person who chooses to compare any attempt at artificial production with the natural product. Even were it possible, the cost of manufacture would exceed many times the price which could be obtained for the finished product. In fact, the cheapest manner to obtain an article which may be sold as honey-comb would be to employ a large number of colonies of bees to gather it from the boundless resources of nature, not one-tenth of which in the present state of the industry is utilized. To fill combs, whether artificial or natural, with any substance, perhaps slightly flavored to give a honey taste, would not produce an artificial product ready for use. The finished article must be sealed with wax, or some similar material, which is not by any means the slightest difficulty in the way of the skillful imitation of nature's product.

As a general comment on the question of whether such a thing as is here described does occur or not, allow me to state that, for some 20 years past, one of the leading firms engaged in the manufacture of apiarian supplies, having in connection with its establishment also a large apiary—toward 1000 colonies of bees—to supply the calls for genuine honey which it receives, and being also a large purchaser direct from the bee-keepers, has offered to forfeit $1000 cash to any person able to bring forward a single pound of comb honey produced artificially which was sufficiently perfect to deceive even a superficial observer. This firm is wholly trustworthy, and able to carry out the offer in question when the conditions are fulfilled. During all this score of years no person has ever claimed the forfeit, yet the offer has been published far and wide.

The basis for stories regarding adulteration of comb honey which have from time to time gone the rounds of the papers lies probably in the fact that comb foundation is made from beeswax, and used both in securing the building of large combs in the brood apartment of the bee-hive, and also in the sections for the securing of surplus honey. This is merely a sheet of wax rolled out until very thin, and then impressed with the hexagonal outline of the bees' cells. On this middle wall which stands as the basis of the cells, the cells themselves are erected by the bees. The comb foundation which is used in the surplus receptacles—the little pound sections commonly seen on the market—is so very thin that little or no objection has existed to its use. Furthermore, it should be said, to the very great credit of American manufacturers of comb foundation, that, quite in contradistinction to many of those in Europe, they have adhered very strictly to the use of nothing but pure beeswax, most carefully clarified, and handled in a very clean manner. Of this I am certain from the fact that I have been a user of these artificial foundations ever since their manufacture was placed on a commercial basis 30 years ago, and have frequently visited leading factories where they are made.

That glucose is sometimes used as an adulterant for liquid honey is well known. This work is almost wholly that of dealers in and manipulators of honey—shrewd merchants in cities—not the producers of honey themselves. Bee-keepers are the most strenuous advocates of a pure-food law which shall oblige the branding of all goods as to their exact contents. They desire this for the suppression of adulteration, and in order that their own honest products should not meet with unfair competition.

To imply that bee-keepers purchase and use the combs which it is alleged are made from the waste products of oil is not only impeaching their honesty, but likewise their intelligence, since they can have the wax produced by their bees from nectar, which the bees gather more cheaply than it would be possible for bee-keepers to obtain any artificial product and secure its filling with sweet substances that might pass with a portion of the public for honey.

The above is as good a retraction as I have seen. In our next issue I hope to show that in another instance, at least, where the subscribers of bee papers were asked to send in their protest, it was not without its effect. Courteous letters sent in to the publishers by the hundreds have a *tremendous* effect. While it is true that these retractions do not undo all the evil created by the first article, yet they go a long way toward it.

BEE-KEEPERS should not forget the date of the next National convention at St. Louis, Sept. 27—30. In connection with the nomination of officers there is an important announcement under the head of "Convention Notices" on page 821, this issue.

MINIATURE QUEEN-MATING NUCLEI; ESSENTIALS TO SUCCESS; SOME MISCONCEPTIONS CORRECTED.

IN view of the fact that Dr. Miller in Straws, in this issue, has possibly misunderstood the editorial on this subject on page 743, it seems proper that I should go over this ground a little more carefully in order that honey-producers, not necessarily queen-breeders, may not make a mistake and declare the small nuclei a failure.

It should be clearly understood that miniature nuclei of 100 or 200 bees are *not* to be used for *rearing* cells. While they may be used for *hatching* ripe cells, as a general thing they are not to receive virgins before they are four or five days old. The purpose of these nuclei is simply for *mating* queens—this much and *no more*. The cells should always be reared in strong colonies, generally two-story, under the swarming or superseding impulse brought about by light feeding every day if honey is not coming in. Right here we follow the teaching of Doolittle. In our queen-rearing work the virgin hatches out into a strong colony and is fed for the next two or three days of her existence in such colonies. She is then introduced to the little mating nuclei, and when she begins to lay she is sold. In a word, she is cradled, if I may coin a word, up to the time of mating, in a strong colony that is in the highest state of prosperity; and when she is old enough to seek her own "gentleman company" she is given board and lodging in a small family, so to speak. But even here this little family is fed a little every day so there may be no lack of food; and every inducement is made to get the young lady to lay at the earliest time possible.

I had supposed it was generally accepted by honey-producers and queen-breeders alike, that, if a young queen were cradled up to the time of mating in a strong colony, she would be as vigorous as any queen could possibly be; that mating in one or two standard-sized-frame nuclei, or even in the miniature boxes, would in no way impair her future usefulness. Indeed, I do not see how it could. In the little mating-boxes she is given lavish attention, and, what is more, the little cluster of bees is much more peaceable and quiet than a larger cluster, hence much less liable to worry the queen.

How any one could take the position (and I am glad to know that Dr. Miller does not) that a queen cradled in a strong two-story colony, and cared for up to within three or four days of mating, could be rendered less vigorous by having mated in a miniature nucleus is something I can not understand; and I can only assume that the correspondent who does take that position has it in his head that these baby nuclei are used for cradling as well as mating the queen.

But Dr. Miller, in Straws, seems to imply that these miniature nuclei may not be supplied with any brood. I doubt if this would do. They must not only be fed, but be kept supplied with brood or they will swarm out. This is very important. And, again, they must not be smoked like ordinary colonies. As a rule they should be opened up without any smoke at all. Bees are probably guided largely by scent in their recognition of robbers. If we smoke a large colony there are only a *very few* individuals that get any smoke; but if we were to smoke a miniature nucleus *all* the bees would be scented. This makes it difficult for them to recognize a robber, and hence the reports of these little baby nuclei being robbed out.

Another important essential is that, when these nuclei are formed, the bees must be confined at least three days, otherwise they will desert and go back to their old locations.

Now, then, those of you who have to do with mating nuclei should understand, first, they must be supplied with brood; second, they must be fed a little right along if no honey is coming in; third, they must not be smoked; and, fourth, must be confined for at least three days at the time of forming.

In addition to what I said about the successful working of these miniature nuclei in mating queens and nothing else, I wish to go on record as saying that the results have been even more favorable than last reported. We have a larger number of them in use, scattered over the yard, and robbing has been at its worse; and notwithstanding that these little boxes are supplied with feed in very small quantities almost continuously, it is a noticeable fact that there is no robbing around them. If we were to smoke them every time we open them up, judging from past experience, I should suppose there would be both robbing and deserting.

Now, to many of our readers this may seem unimportant, and of value only to the queen-breeder. If any such get that impression they are certainly wrong. Every honey-producer can rear his own stock at less expense and bother, if he can work these small mating-boxes. It is well known that it is an easy matter, comparatively, to get cells and good ones; but up till lately the question of mating was the problem, as so many fourth and quarter size colonies (two and three frame nuclei with standard-sized frame) result in the waste of a lot of bees waiting for the queen to lay. Again, it is no effort whatever to find the queen among a lot of only 200 bees on the combs. She can be spotted instantly.

If our experiments continue to be as favorable with these mating nuclei as they have been for the last thirty days, and if other bee-keepers can make them work, then our good friend E. L. Pratt, better known as Swarthmore, deserves a vote of thanks from the fraternity at large for continuing to stick to these little nuclei, even when the veterans and the queen-breeders had declared that they were a failure. Dr. E. F. Phillips, who visited Mr. Pratt, said the latter used to be very much amused, annoyed, and provoked when old queen-breeders of experience would assert in the journals that his miniature mating-boxes were a failure. GLEANINGS, for one, is willing to come out and recant.

"BEE-KEEPING AMONG THE ROCKIES" TO BE EDITED BY J. A. GREEN.

THE short time the new department, "Bee-keeping among the Rockies," has been running in these columns has convinced us that it was beginning to fill a long-felt want. While it is true we have been publishing articles from Western bee-keepers, yet we had felt for some time that this great expanse of country, west of the Mississippi, deserved more substantial recognition than it has so far received. When we selected Mr. H. C. Morehouse, formerly editor of the *Rocky Mountain Bee Journal*, to conduct a department in these columns, we made a wise choice, for no better man could have been found. But that insidious disease, known in latter days as appendicitis, took our correspondent just at a time when his greatest usefulness and his ripest experience were at their best, and when, too, he could have done so much for his brethren of the West.

J. A. GREEN.

As soon as we had recovered from the shock of his death, for we had come to love him as a brother, we began to think over whom we would have to continue the department; and the more we thought it over the more we thought Mr. J. A. Green—Colorado—might be our man.

In years gone by he was one of our most valued contributors. He then hailed from Dayton, Ill., and was one of the few contributors whose communications we invariably handed in to the printers without reading until they appeared in galley form. He was careful, conservative, and conscientious in his statements, and withal a skillful bee-keeper. Well, this man, some years later, after the writer had his trip through the great West, made some inquiries about available locations that might be secured where he would not be trespassing on territory belonging to some other bee-keeper. The result of his inquiries was that he made an extended trip, studying the conditions of bee-keeping as they exist in Arizona, California, the great Northwest and finally landing in Colorado. Already an expert bee-keeper before he took this trip, his knowledge of the profession has been greatly broadened; and now that he has finally settled in his new location, he has adapted himself to the new environments to such an extent that he has come to be a part of the great West.

In addition to his wide experience and extended observation in different parts of the United States he is now foul-brood inspector of Mesa County—a position that brings him intimately in contact with a large part of the bee-keepers in his section of the country. Inspecting, as he necessarily has to do, hundreds of colonies, he knows most thoroughly the conditions as they exist in the great Rockies. He is one of the active members of the Colorado State Bee-keepers' Association, and in every way seems to understand thoroughly the conditions as they exist in that arid country.

Well, to make a long story short we have made arrangements with Mr. Green whereby he is to conduct, temporarily at least, the department so ably edited by his predecessor, Mr. Morehouse. I say "temporarily," because Mr. Green is not sure his time will allow him to take up this work permanently. We are glad to introduce again, then, one of our old correspondents, Mr. J. A. Green, as one of our editorial writers. He will begin his work about the first of September.

C. H. W. WEBER AND HIS TWO ABLE ASSISTANTS.

In our issue for June 15 I promised to present a little later a view of more of Cincinnati's "sweet" people; for it will be remembered I then introduced to our readers Mr. F. W. Muth and family.

It is possibly not known that around Cincinnati there center a large number of bee-keepers—perhaps a thousand all told. So active and important are the bee-keeping interests that two of the large supply man-

C. H. W. WEBER.

CHAS. H. WEBER.

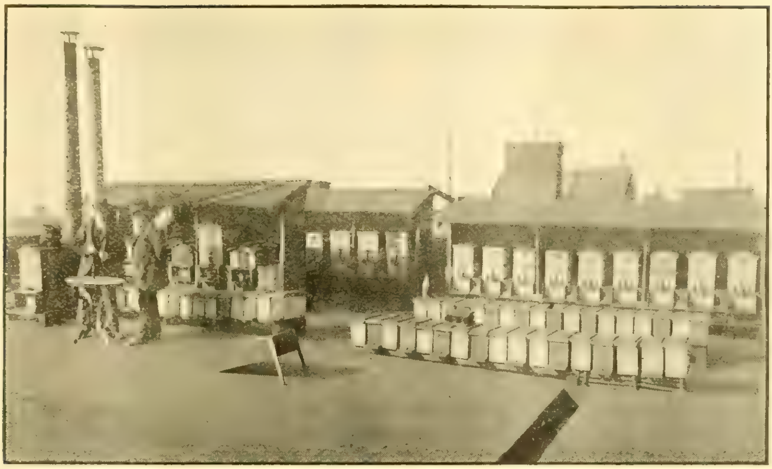
ufacturers are represented in that city, and the competition, I should judge, is at times quite spirited. Nowhere else in Ohio can we find so many bee-keepers who are so actively interested in the pursuit. Among the number are scores of professional men as well as those who are engaged in the business for the money they can get out of it. But among all these people no one is more actively interested in bees than Mr. C. H. W. Weber, who for some years worked with the late Charles F. Muth; and when the latter's interests, after his death, were sold, Mr. Weber purchased the business and the good will.

I did not realize that Mr. Weber was so much interested in bees until I met him at the Denver convention some two years ago. well do I remember how he fired question after question at me after we had retired for the night at the hotel. Every thing connected with the discussions of the day previous seemed to interest him to such an extent that he desired to go to the very bottom of it if it were possible. Just about as I would be dropping off to sleep our friend would rise up in bed and ask another question. I do not remember now just what those questions were, except that our friend was so thoroughly interested he could not go to sleep. Some time about midnight, and after I was asleep for the night, there was a fearful crash. On striking a light my brother and I found that Mr. Weber and his friend in the other bed were lying heads downward, for the head of the bed had let go. I can not imagine what broke it down unless our friend was so overwrought with interest that he could not go to sleep, and during the process of wiggling and looking over to see if I were really asleep, somehow loosened the bed fastenings.

Oh, yes! I do remember that Mr. W. was working on the subject of formaldehyde as a cure for foul brood. He had read and studied every thing he could get hold of, both in the German and English languages, and was fairly bubbling over with animation.

C. H. W. Weber was born April 21, 1844, in Lemfoerde, Hanover, Germany. When he was a little over fourteen years old, and after a good schooling, he went to Bremen and hired out to a drygoods firm to work for five years, working for nothing and boarding himself. Before he had finished his allotted time he had done so well he was employed as a salesman, and from that time was paid a salary. Four years after that he made a trip to America, landing in Cincinnati, and finally accepted a position with the late Charles F. Muth as a clerk. At that time Mr. Muth had only three colonies of bees, in old-style box hives. These were transferred to modern hives, Mr. Weber assisting. During Mr. Muth's early experience with bees Mr. Weber was a constant attendant. He finally went into business for himself, and in 1872 he married. As a result of this union

EMMA WEBER.



WEBER'S ROOF APIARY.

the couple have been blessed with a family of ten children—three boys and seven girls, seven of whom are still living.

Since Mr. Weber bought out the Muth estate he has been conducting a large business at the old Muth stand, selling beekeepers' supplies, bees and queens, honey and beeswax.

In the line of honey he furnishes nothing but the pure article, even going so far as to have samples analyzed that have been sent him, so as to make sure they are absolutely pure. So large have his sales of extracted honey for manfacturing purposes become that the amount aggregates 60,000 lbs. per month. His honey bottling department has also grown to large proportions, and he now has facilities for bottling 1500 lbs. per day.

Like his predecessor, Mr. C. F. Muth, he has an apiary on the roof of the store, some five stories above the general level of the ground. He has found it necessary to provide sheds, as here shown, to protect the bees, not only from the extreme heat in summer, but from the piercing winds of winter. On the roof of his building he has fifty colonies. Besides these he has two

C. H. W. WEBER LOOKING OVER A FRIEND'S BEES.

outyards, some four or five miles distant from the city.

Mr. Weber, in the business which he has developed, and into which he has poured his whole soul, is most ably assisted in it by his only son, Mr. Chas. H. Weber, Jr., born in 1880, and his daughter, Miss Emma Weber, born Feb. 29, 1884. When the writer called at their store late last fall it was very apparent that both the son and daughter were about their father's business; and what was particularly noticeable was that they were not afraid of work. Charley seemed to be thoroughly posted in every detail of the business, superintending the supply trade, and at certain seasons of the year goes out on the road as salesman for honey. Miss Emma attends to all correspondence and book-keeping. She it is who looks after the grading, and during the absence of her brother superintends the honey department, seeing that all the goods are put up perfectly clean and neat, and nicely labeled.

At the time of my visit the Webers had just received a carload of comb honey that came in a broken-down condition. Emma was engaged in sorting the honey over, cutting out that which was badly broken, and putting it into a barrel to be sold for chunk honey.

It was quite a cold day for Cincinnati, I should judge, and I remember there was a roaring fire in the stove. All at once I heard a feminine voice calling out, "Charley! come here quick!" Distinctly do I remember how Charley bounded over the cases of honey until he reached the side of his sister, who called his attention to the fact that the crates next to the aforesaid stove were scorching badly, and that there was danger of injuring the honey. Greatly to my surprise, Miss Emma, without calling for any man help, and saying "Oh dear!" in utter helplessness, grabbed hold of one end of those heavy cases, motioning her brother to do likewise at the other end, and carried them further away from the stove. In this way the two picked up and moved hundreds of pounds of honey almost before I could collect my thoughts. I did not at that time know that the girl was Miss Weber, for it seems she was dressed to do a messy piece of work, and evidently did not care to make her identity known, especially to one who sometimes writes up what he sees. In the convention that was held that evening I recognized the same young woman who is here shown, and was then given a formal introduction. Notwithstanding the young lady is capable of lifting heavy crates of honey, she is neither large nor masculine in appearance, but, on the contrary, as her picture shows, the very opposite.

Any father may well be proud of two such able assistants, who have not been spoiled by luxurious surroundings, but have been taught to know the value of honorable work. Nor wonder Mr. Weber's business has been crowned with success.

GENERAL
CORRESPONDENCE.

THE SENSE OF SMELL IN THE BEE.

The Office of the Antennæ.

BY E. F. PHILLIPS, PH. D., OF THE UNIVERSITY OF PENNSYLVANIA.

Any one who has observed bees has seen that they are guided very largely in their movements by the sense of smell. Bees have been known to fly a mile or more over water to reach flowers on an opposite bank toward which they could be guided only by scent.

The celebrated naturalist Huber first discovered that the organs of smell in the bee are located in the antennæ, and he performed some interesting experiments by cutting off the antennæ and thus depriving the bees of their power of detecting odors. I have recently repeated some of his experiments on workers, drones, and queens, with some modifications, and all my results confirm his position.

Concerning the queen, Huber says, "When one of her antennæ is cut off, no change takes place in the behavior of the queen. If you cut off both antennæ near the head, this mother, formerly held in such high consideration by her people, loses all her influence, and even the maternal instinct disappears. Instead of laying her eggs in the cells she drops them here and there." As is well known, a young virgin queen is normally accepted without any difficulty by any colony which has been queenless long enough to know its queenless condition. In experimenting along this line I cut the antennæ from a virgin queen about three hours old, and put her on the comb of an observatory hive, and she was at once balled. This was repeated with another hive. She was rescued from the workers, and confined in the hive in an introducing-cage containing candy, but in a short time died, probably of starvation, for I am sure she was not stung by the bees in the ball, for she was taken out at once and I never lost sight of her. Although there was candy in her cage she evidently did not recognize it as food, since she was not attracted to it by smell, and on account of the loss of her antennæ she was not fed through the meshes of the wire cloth.

When the workers are deprived of their antennæ they remain inactive in the hive, and soon desert it since they are attracted only by light. I cut the antennæ from several workers, and marked them on the thorax to make it more easy to follow their actions, and then put them in an observatory hive from which they had been taken. The other bees at once recognized that there was something wrong with them, and gathered round them much as they surround the queen, and repeatedly tried to feed them; but the injured workers could not guide their tongues, and consequently did not take food readily. One worker with its antennæ off was put on the alighting-board of its own hive, but was at once repelled and carried away by one of its own hive-mates.

Drones act in a very similar manner, but are frequently rejected by the workers as soon as they are put in the hive. Huber reports that, as soon as the light was excluded from his observatory hive, although it was late in the afternoon, and no drones were flying out, the drones from which the antennæ had been cut deserted the hive, since light was the only thing which attracted them.

From these observations it seems clear that bees recognize each other very largely by scent, but also by touch. The workers and drones operated on were returned to their own hive, and we would suppose that they retained the odor of that hive; but since they were not able to extend their antennæ to the other bees they were at once recognized as differing in some way, and received different attention. Langstroth says of these experiments, "The inference is obvious, that a bee deprived of her antennæ loses the use of her intellect;" but this statement should be modified somewhat, for the intellect is in no way influenced by the operation. The bee continues to respond normally to all sensations which it has the organs to receive, for we see that light still attracts them as it did before; but on account of the one-sided reception of stimuli its actions become abnormal.

It yet remains to be seen which segments of the antennæ receive certain odors, for probably they are not all alike. It has been found in ants that the different segments of the antennæ perceive different kinds of odors, and the same is very probably true for bees.

Medina, Ohio.

HARRY CLINTON MOREHOUSE.

Sketch of the Short Life of the Secretary of the Colorado State Bee-keepers' Association.

BY LEO VINCENT.

On Sunday morning, July 24, at 3:30, occurred the death of Mr. Harry Clinton Morehouse, at his home in Boulder, Colorado, after an illness of but eight days, from appendicitis. At no period during his brief illness was it suspected by those in attendance that the cause was other than stomach trouble, which seemingly yielded to the treatment administered. On Thursday a period of convalescence came on which continued for two days, when suddenly a change came, and the victim rapidly sank to his last sleep. An autopsy, held under proper authority, disclosed the exact cause to be a cancerous formation growing about the lower abdomen, and immediate cause appendicitis.

Mr. Morehouse was born in Marengo, Morrow Co., Ohio, April 15, 1869, being at the time of his death thirty-five years three months and nine days old. In 1893 he with his father, Thomas H., and mother, Mary V. Morehouse, together with a grandfather and brother, removed from Ohio to Guthrie, Oklahoma. There the young man apprenticed in the printing trade and later became a junior partner of the writer. In 1897 he accompanied the writer to Boulder to establish here the *Colorado Representative*. This being successfully accomplished, and having early acquired marked skill in the handling of bees, he sold to its founder his interest in the printing-plant and invested the same with other capital in an apiary in 1900. About this time he was married to Miss Mary Niles, of Boulder. In 1901 he established the *Rocky Mountain Bee Journal*, and conducted the same with great success and recognized ability by reason of his keen scientific insight into the subjects treated. Rapidly did his business increase till this time, when he had under his control by far the largest number of stands of bees of probably any one in the State.

In March last he sold his journal to a

H. C. MOREHOUSE.

California party, and has since confined his efforts to his apiary and to the duties devolving upon him as secretary of the Colorado State Bee-keepers' Association.

Since coming to Boulder an accident caused the death of his younger brother. Two years ago his father died; a few weeks later an aunt was taken while a near neighbor, and now he has answered the sudden call, leaving an aged mother alone in the world, save a bereaved young wife with little son sixteen months old.

Mr. Morehouse acquired more than ordinary success in his chosen vocation. He was a man of marked characteristics, and one whose manner at once impressed all with his earnestness, candor, skill, and honesty. He stood high in the business and fraternal circles of Boulder; and in the State Association none were more strongly recognized in their profession.

The funeral was held on Tuesday, the 26th, under the auspices of the Christian Scientists of Boulder, of which organization the young widow is a devoted member. The Woodmen of the World took charge immediately thereafter, and escorted a large *cortege* to the grave, and there performed the rights of the order, of which he was a protective member. Quite a large delegation of members of the State Association from over the county were in attendance, and the floral tributes were indeed lavish and most beautiful, signifying in a measure the high regard in which the stricken brother was held.

APIS MELLIFICA OR APIS MELLIFERA.

Which is Right?

BY F. GREINER.

For many, many years our honey-bee has been known among scientists as *Apis mellifica*. It is owing to Prof. Frank Benton and Prof. Cook that the older name, *Apis mellifera*, has been resurrected again, if I am not mistaken. Br. Buttel, Oldenburg, says in *Bienen Vater*, that Linnæus named the honey-bee in 1759 *Apis mellifera*. The Latin word *mellifera* signifies *honey-gatherer*. Linnæus at that time believed, so it appears, that the honey-bee simply gathered the honey and stored it in the combs, as she found it in the blossoms. Two years afterward he discovered his mistake, for he found conclusive proof that hive honey is not identical with nectar; and when he came to the conclusion that the nectar had to be changed to become honey, and that the honey-bee performed this work, he at once changed the attribute *mellifera* to *mellifica*, which signifies *honey-maker*. It seems, therefore, that *mellifica* is the right name, though *mellifera* is the older one. I am the more surprised that Prof. Cook should use the wrong name, since it was he who did so much toward having the bee-keepers understand that honey was not simply the gathered nectar, but digested by the bees and thus changed to honey.

Naples, N. Y., July 25.

[I have asked Dr. E. F. Phillips, a zoologist who is here, to answer this, which he does.—Ed.]

Mr. Root asked me to make a reply to the above article. The question as to which name shall be used for the bee was fully discussed by Mr. Benton in GLEANINGS for March 1, p. 232. In that place he pointed out the fact that Linnæus, in the tenth edition of his *Systema Naturæ*, gave the name *mellifera*. According to the rules for scientific names this edition is the one which has priority above all the rest, and for that reason the name *mellifera* must be used. It makes no difference how many names were given to the bee before that time, or how many other names have been added since, this name will stand without any change. The question as to which name most nearly designates the bee has no bearing on this. The fact is that either *mellifera* or *mellifica* could properly be used as applied to the bee; but even if its name were *gigantia* or *elephantas* we should still have to use the name which was given to it in that edition of Linnæus.

E. F. PHILLIPS.

FEEDING BEES OUTDOORS.

How to Prepare a Feeder with a Tub and a Piece of Cloth.

BY MRS. L. C. AXTELL.

We have no trouble in feeding bees out of doors when all colonies need feeding, and can't see how strong colonies can take more honey than weak ones, except as there are more bees to take the syrup.

The last two years I have used a metal or sheet-iron wash-tub (as a wooden tub might dry out and leak); simply spread over it a tablecloth or any old clean cloth that the syrup could easily go through, and pour two to four pailfuls of syrup into the tub when empty; and 50 to 100 hives of bees will take it up in an hour or so with no fighting or killing one another or trying to rob hives, even those only a few feet away. We have fed out of doors the last 15 years or longer, and see no ill effect from it. It saves much labor. We have no bees nearer than two miles. The bees pile up on top of each other several inches deep, and yet seem peaceable. If we were feeding fewer bees we would put less into the tub. It might be better to use more tubs at a time. We formerly used long flat boxes, but they leaked, and floats would get broken when not in use.

There should be some grass or long straw, a large handful, laid on the cloth in the tub, or some bees will drown. They crawl out on the edges of the cloth. We simply put the sugar into the water — what will easily dissolve—and pour off the top. Don't have it too rich — not richer than ¼ sugar to ¾ water. We would not feed honey in that way, though one year our bees died off badly in winter, and we had hundreds of combs full of honey in the honey house, badly eaten by worms. We did not know what to do with them, so we carried them out and scattered them around the apiary so the bees could have all they wanted for several days, and they settled down and worked on them quietly, as if getting honey from the flowers. This was the last of July or first of August

Have the cloth that is laid over the tub large enough so the corners will not (or the sides either) get into the tub, so the bees can crawl into the tub. Sometimes I have tied a string around the top of the tub; but this spring I did not, and no bees were drowned.

Roseville, Ill., July 22.

MARKETING HONEY.

Some Very Seasonable and Important Suggestions.

BY WM. A. SELSER.

Both the question of price and the place to market honey depend entirely upon the location upon which the honey is raised. Honey brings a better price, as a rule, when sold at a large market nearest to where it is produced, for the reason that you can familiarize the trade with the location; and if they are pleased with the product they will try to secure it from that location every year. The result of this is, they are willing to pay a little better price for it. The great trouble with the bee-producers throughout the United States is that they are so very busy during the honey season they do not get their honey ready for the market until fall, and then it is not shipped into the market until winter.

In the past number of years, experience has shown that honey brings the best price in September and October; and while trying to hold back the crop, or the facts relating to the quantity of honey produced, may bring a higher price for a while, as soon as the market realizes that there is honey being held back, the price drops. It is always well to get at the facts as they are; and while, seemingly, hiding the facts may help the price temporarily, it destroys confidence eventually, and hurts the price.

The writer has had considerable experience from different locations where bee men have distinctly said there was no honey when a little detective business has revealed carloads carried over. There has been considerable extracted honey carried over the past season, and the chances are that extracted honey will not bring any more this season, but possibly a little less, than it did in 1903.

Comb honey brought a good price in the fall of 1903, which seemed to be maintained through the winter; but so much honey that was held back for still higher prices was forced on the market in February, March, and April, that comb honey has sold in the last three months at a lower figure than it has been known to sell at for many years.

When this is the case the grocer is slow to take hold at the opening of the coming season. When he has bought honey in the late spring as low as 9 or 10 cts. he will let you pass by if you ask him much more than this early in the season, until he is actually compelled to buy it owing to the call from the consuming trade. I would advise all bee-keepers to take time to get their honey ready for market in August or early in September, and get it to destination by the last of September or early in October. There is more honey sold in October and November than in the other ten months put together.

Philadelphia, Pa.

[The reader can easily prove many of Mr. Selser's statements by looking at the fluctuation of the honey market in the fall and succeeding spring. It is perfectly plain that, if some of the honey that was held back for better prices had been sold at the right time last fall, there would not have been such a terrible slump in the market this spring. I know personally of some shipments that were held back which were finally sold at a large reduction in the spring—shipments which might have saved the producers hundreds of dollars if they had been made in October or even November. Better by far have a little easier market in the fall than a market all smashed to pieces in the subsequent spring. We are suffering at the present time because of low prices during the last six or eight months.

One trouble is that some producers feel that we have "an ax to grind," and have taken our statements with some allowance. The honey-market quotations published for the year ought to show whether we are biased or not.

CALIFORNIA ITEMS.

Phacelia.

BY W. A. PRYAL.

Mr. Root:—I am impelled to send the following notes, mostly in answer to matters that have come up within the last few months. They concern topics appertaining to bees in this State.

The phacelia is common in California. Prof. Volney Rattan, in his "Popular California Flora," second edition, notes some eight varieties. I have seen it growing right up to the edge of the Pacific Ocean, and I don't remember how far inland. I believe it can be found all over the State. Some of the varieties are of rather delicate growth; others are robust. The former are relished by cattle; and where it grows in quantities it is a valuable pasturage. I have found bees working on all the varieties I have noticed, but I do not think it can be counted on for any large honey-flow.

ANTS.

The little black ants that are such a nuisance to the housewife are becoming excessively common in California. Many kinds of ants are to be found in the State; but these little pesky fellows are an abomination. They are a pest in certain portions of San Francisco. When bees are kept long in one location, ants are a sore annoyance to the apiarist. It is not the amount of honey they carry off, but mostly because they are always in the way. The best way I have found to get rid of them, or, rather, to reduce them to a minimum, is to go over the hives once in a while and kill them. They are best got at by placing a piece of burlap over the brood-nest of the hive, and something between the burlap and cover. The ants will establish a flourishing colony in the warm region thus made. By taking off the cover the pests may be rubbed or otherwise crushed to death. What an amount of eggs these ants produce in a brief period of time! If the hives are on planks or other large pieces of lumber, the ants are sure to nest between the hive and rest, or, perhaps, between the latter and the earth. To get rid of ants you have to hunt for them as you would for a flea, bedbug, or any other troublesome pest. Go for them; turn every thing over, and roust them about. If they are where you can not get at them, treat them to a hot-water bath, or pour some coal oil or crude petroleum into their haunts or runways.

I would not recommend hunting ants on a hot day. If you do, you may stir up something worse than a hornet's nest—yea, a sort of mixture of skunk-juice, bees, and hornets combined. The odor of crushed ants seem to provoke the fighting proclivities of ants as a red rag will stir a bull to devilish rage. Therefore go ant-killing on a cool day, or early in the morning when the bees are content within their little homes.

THE SPORTIVE LIZARD.

Do lizards kill bees (p. 658)? Yes, they often have them for dessert, stings and all. Many a time I have watched the pretty little creatures dart from their hiding-place and grab up a bee and come back to the starting-place on the run, all without stopping. At other times I have seen them apparently quiet, and when a bee came within their reach it would be a case of seeing a bee and then you don't. They are the greatest sleight-of tongue fellows I ever saw. Toads, too, are slick with their mouth apparatus when the opportunity presents itself for taking in a poor innocent bee. How many bees it takes to form a lizard's diet I know not. In sunny places the small quick-running lizards are very numerous. Scare them away if you can; if not, shoot them with one of the small air-guns using BB shot. With a little practice you may be able to make them turn toes and tail over head while they are sprinting after a bee.

POPPY HONEY.

There would be millions in it if we could get enough of it. That some nectar from poppy flowers finds its way into the hives near where these flowers bloom is a fact. Ginseng wouldn't be in it alongside of poppy honey if we could only send a lot of it over to the Celestial Empire. But it would not be right to dope the Chinese in that way, some will say. No, I think it would not, if the honey were narcotic or injurious. My belief is that the honey does not partake of the bad portions of the plant. That it is a nectar-producing plant I know; it is great in pollen too. At our place in Alameda County, some years we have large patches of poppies, mostly of that brilliant and delicate variety known as the Shirley.

San Francisco, Cal.

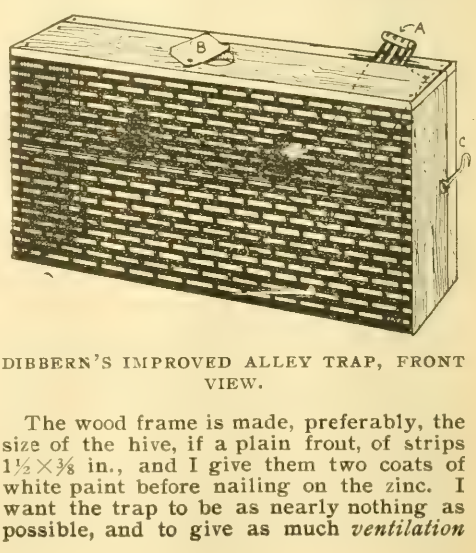
[We have had reports going to show that poppy honey partakes of the narcotic qualities of the plant.—ED.]

DIBBERN'S NEW QUEEN-TRAP.

How it Differs from the Alley Queen and Drone trap.

BY C. H. DIBBERN.

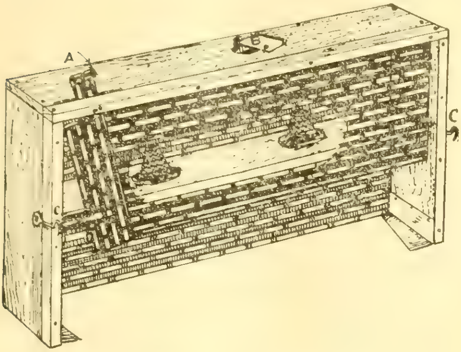
In the first place I want to say that this is no new untried experiment, as I have had them in constant use for the past ten years. True, I have made some changes in recent years; but the general features have remained the same. Now, I do not claim to have "invented" the queen-trap, for that honor belongs to Mr. Alley; but I do claim to have perfected a trap by a gradual system of evolution that is a great improvement in every way. The illustration will give a general idea of the trap; but a few points require an explanation.



DIBBERN'S IMPROVED ALLEY TRAP, FRONT VIEW.

The wood frame is made, preferably, the size of the hive, if a plain front, of strips 1½×⅜ in., and I give them two coats of white paint before nailing on the zinc. I want the trap to be as nearly nothing as possible, and to give as much *ventilation* and *light* as can be, and the white color helps immensely.

Right here I want to say that the Dr. Tinker zinc is a great improvement. The entire front is covered by a single piece of zinc, and the back is also covered by a similar piece, but extending only 1½ in. below the middle slat on which the wire tubes are nailed. This zinc is cut about 1½ in. short, so it will leave an opening from the trap back to the hive. Here a sliding door is provided that can be readily operated from the outside while the trap is fastened by two Dibbern malleable hooks to the hive.



REAR VIEW OF DIBBERN TRAP.

To provide a bee-space back of the rear zinc, strips ½ inch wide are nailed to the rear rim of the trap. The tubes of wire cloth are placed over holes in the middle strip very near the front zinc, as otherwise the queen will persistently follow the zinc, if there is an edge of wood between the zinc and the wire tubes, in trying to escape.

The following are some of the improvements I claim over all other traps: Allowing eight or ten rows of perforations for the bees to pass through, as well as ventilation through the upper or trap part, gives better ventilation. The white color gives more light, both for the bees and the man to see readily the queen when a swarm issues. It is fastened securely to the hive by means of the hooks, and will stay there; owing to the great surface admitting light and air, the queen is far more certainly trapped than in devices allowing only a few rows of perforations in the zinc, to accommodate the bees.

I prefer to call this a queen-trap, though of course it is a drone-trap as well. Bee-keepers in general, and farmers, are not much interested in trapping drones; but when it is shown them how easily they can manage the swarming business they become interested at once. The trap, however, can be made very valuable in any apiary in trapping all undesirable drones.

In a future article I will give the general use of the trap, and how I manage to control swarming in an apiary of 150 colonies surely and easily. C. H. Dibbern.

Milan, Ill., July 18.

[I believe your trap is an improvement over those that have been generally sold; but for some years back we have made the Alley trap somewhat different from the original model, embodying several of the features you show in your trap. We made the lower compartment much larger to increase the ventilation and amount of light, and reduced the amount of room where the drones are trapped above smaller. Then we put the bee-space on the back — a suggestion of some one, I do not remember who. The only practical difference between your trap and ours is the slide or gate that permits of releasing the queen back into the hive without removing the trap (a very good feature, by the way) and a wider extension of metal on the back side, the obvious purpose of which is to force the queen up into the compartment through the cones. Both of these improvements are along the right lines, and the Root Co. may adopt them, possibly, with your permission.—Ed.]

FOREIGN COMPETITION.

How Far does it Affect American Bee-keepers?

BY W. K. MORRISON.

Mr. Editor:—Your reference to the rise and development of tropical bee-keeping is accurate so far as it goes; yet some of your readers may feel alarmed at the prospect of serious competition from outside sources. In my opinion there is no need to be alarmed at the prospect. With the exception of Argentina and Chili most of these competitors (or, rather, would-be competitors) are what would be known in the United States as *slow*, with a capital S. They make no claim to being "strenuous" countries, and hence it will be some little time before this competition becomes serious, not to say menacing. Argentina and Chili are, however, formidable rivals, and likely to develop very fast into heavy exporters of honey. These countries are peopled by lively, energetic folks, thoroughly practical and scientific, with lands eminently suitable to apicultural pursuits. Chilian alfalfa honey has a regular market in London at fairly steady prices, higher (or at least as high) than New York rates, hence it is under no necessity of being shipped to the United States.

Argentina is a more dangerous antagonist, coming later into the field of apiculture. The vast areas of that country under alfalfa for grazing purposes form a sort of bee-keepers' elysium. No wonder average yields of 300 or even 500 lbs. per colony are reported. With fine weather for months at a time, and illimitable fields of purple alfalfa, Argentina certainly presents a very inviting field for our chosen pursuit or avocation, for there bee-keeping is subsidiary to cattle-breeding. Still, it is hardly likely that Argentina's honey will be sent to American ports, as higher prices can be uniformly obtained in London, Antwerp, and Hamburg. Nor is there any prospect of this situation being changed.

South Brazil has long been known as a honey country. Hannemann, the inventor of the queen-excluder, made some famous records down there many years ago. As a matter of fact, bee-keeping does not occupy the same place in Brazilian agriculture it did some years ago. Probably São Paulo City, with its 350,000 inhabitants, would consume the whole local product, and considerably more if the sale of honey were pushed with businesslike methods. Therefore we may dismiss South Brazil from our calculations for the present.

Paraguay, that queer far-away republic, has very few bee keepers within her borbers. Uruguay has more, but not to cut any figure. Taking Chili, Argentina, Paraguay, Uruguay, Rio Grande do Sul, and Sao Paulo together, we have a country as large as the United States, with a much milder climate, and eminently suitable for bee-keeping. Therefore, keep your eye on the Rio Plata countries and the Banda Oriental. They are great rivals of the United States in all lines — cattle-raising, dairying, horse-breeding, fruit culture, sheep-herding, and wheat culture; then why not apiculture?

Further north the next serious competitor is British Guiana, just looming up on the horizon. It is twice the size of Cuba, and is about well adapted to bee-keeping; but that it will ever rival Cuba is to be doubted, for it hasn't a very good name as a health-resort, and the pale faces do not run there in droves. It much resembles Louisiana; and Georgetown, the capital, I regard as a much nicer place to live in than New Orleans. If the climate were as nice as that of Jamaica the country would cut a great figure in the honey market.

Trinidad and the Windward Islands are too small and too populous ever to have much honey to export. Jamaica is a small island which the natives persist in regarding as the leading island in the West Indies, barring Barbados, the hub of the western seas. British Honduras is a very inviting field for bee-keeping — none better anywhere; and if one can put up with a very quiet existence, "far from the madding crowd," this is the country for him, for life can not be more devoid of human interest and excitement than it is there. British Honduras is a fine country for a naturalist; and with a good house to sell for him in England a bee-keeper need never want for cash, as crops are certain.

All around the Gulf of Honduras the country is a grand one for apiculture. The periodic revolutions are a serious drawback; otherwise their competition would soon be serious. Inland the country is extremely pleasant and salubrious.

The most promising field of all, however, is in Mexico, all around the Bay of Campeche. The leading tree is the logwood, or "campeche," which flourishes on every hand. The mahogany is also a good source of nectar. The country is healthy, and easily reached from New York or New Orleans, particularly the latter. This part of the world offers many tempting opportunities for the enterprise of Americans, consequently there are many on the ground making fortunes out of sisal, sugar, mahogany, etc.; so the bee-keeper would have some one to swap stories of life in the home land, and eat flapjacks with him Sundays.

The island of Haiti, one of the world's most beautiful countries, presents golden opportunities to bee-keepers — when it gets a good government, but not till then. Sometimes we read the interesting statement, "Uncle Sam is going to take care of it." When he does, there will be a perfect scramble among bee-keepers for locations in that isle of beauty and—*honey*.

Now, what is going to happen if all these countries start apiaries on a grand scale? Nothing. Some genius like Phil Armour, of Chicago, will start a gigantic honey-canning factory in some seaboard city, where honey will be put up like roast beef, in cheap packages, to be shipped in steamer loads to the great hungry European centers, and sold to the multitudes at a nominal profit until American honey becomes as well known as Armour's beef or Pilsbury's flour. It is really a very simple problem. Blend the honeys of Cuba, Mexico, Texas, California, Chili, Guiana, Argentina, and all the rest, in gigantic vats, and can by the million. Europe is hungry for cheap honey with a guarantee that it is pure.

So far from trying to keep foreign honey out, I would try to get it in, so as to corner the market, or at least control it, just as Armour did with beef.

There is no better package for honey than the ordinary 3-lb. tin can. The Chicago butchers, Borden's milk, and Maryland peach-canners, have demonstrated this beyond all peradventure, for now these goods are regularly stocked by grocers all over the civilized world.

This explains why I hold that the present tariff does us no good. What is wanted is a great agency for taking care of honey in vast quantities, holding it back at times, and distributing over the whole world at low prices to the hungry multitudes.

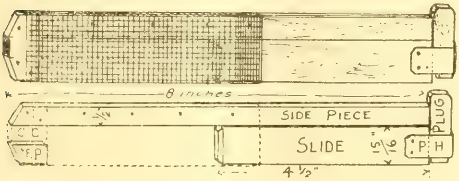
[It seems to us that Mr. Morrison has gone over the ground very carefully and fully. The fact that the foreign honeys entering the American market are usually of low grades warrants the belief that they will not affect to any considerable degree the prices of American honey, for the duty paid is just as high on a four-cent extracted honey as on a fine table honey. We know there is a steady demand for our better grades of honey for export (our exports exceeding our imports) so we believe American producers should not be greatly concerned so long as the better markets are left. The methods employed in many foreign countries in the production of honey preclude the possibility of their honey rivaling ours.—Ed.]

Heads of Grain from Different Fields

CALLBREATH'S IMPROVED MILLER INTRODUCING-CAGE.

I send by this mail an introducing-cage which I think you will consider an improvement on the Miller cage. The side-piece extends the whole length, and the wire cloth is nailed to that as well as the short front-piece. In the Miller cage there are two of the short front-pieces, which, with the two tins nailed on, form the space for filling with candy. In this cage one of the front pieces is made to extend the whole length, so that, when putting it in an ordinary entrance with a queen inside of it, there is no danger of pushing the slide-piece in and killing or injuring the queen; and, when removing the cage from the entrance, it all comes out together instead of only the slide-piece, as is likely to be the case in removing a Miller cage.

Before nailing on the two flat pieces of tin I bevel off one end of the side-piece and one end of the front-piece. After the tins are nailed on I cut off the projecting parts (with a pair of scissors) to match the wood; then when I want to fill the candy-compartment all I have to do is to give it two or three jabs into the candy, turning it sidewise each time, and the candy is just where I want it. To prevent the candy from going right on through into the place for the queen I first push the slide-piece clear in against the back of the front-piece, thus closing the back of the candy-compartment.



Sometimes it is convenient to use this as a *confining-cage.* In that case it is necessary to have something besides candy to stop up the front opening with. This plug or stopper I make when I make the cage, and keep it at the back end of the slide-piece by folding a piece of tin over it and nailing the tin to the slide piece. The drawing I inclose will make it plain if this does not.

MEASUREMENTS.

Side-piece, 8×½×¼; front-piece, 1×½×¼; slide-piece, 4½×$\frac{15}{16}$×¼; plug, 1½×½×¼; wire cloth, 6×4½; plug-holder (tin), ⅞×2; two tin cleats, 1×1⅜.

Twelve inches would be the best width for the wire cloth; then, when cut into pieces, there would be one *woven* edge to each piece. That edge should be put on the front end. The back end should be folded under one inch for four reasons: 1. The queen will run in better over a *folded* edge than over a *cut* edge with the sharp points sticking out; 2. They are nicer to handle, as the fingers are less likely to get pricked; 3. It is easier to insert the slide; 4. If the slide is a little loose, so that it is liable to fall out when handled, the double thickness can be pressed in on each side with the thumb and finger, and be stiff enough to hold the slide, while a single thickness is not.

The outside edge that is nailed on the side-piece ought also to be a folded edge.

After folding over the back edge one inch, and the outer side edge nearly ½ inch, I use a stick $1\frac{7}{16}$ wide by $\frac{3}{16}$ thick for a *form* to get the wire cloth in the right shape to nail to the side-piece and front-piece.

I nose off the front end of the slide-piece so that it can not catch on the wire cloth in being pushed into place. It is better to round off the edges also by drawing them over a plane a few times.

In making I use ½-inch wire nails. To cage the queen, remove the slide; take the queen in the left hand; slip the opening between the thumb and fore finger of the left hand, and the queen runs *up* where she is wanted; then replace the slide.

All the wooden parts should be of pine, as it swells less than basswood in case it gets wet. JOHN S. CALLBREATH.

Rock Rift, N. Y., July 13.

ACT OF MATING OF QUEEN AND DRONE, WITNESSED BY E. L. PRATT.

I have this day witnessed the act of copulation between a queen and drone. About 2:30 o'clock on the afternoon of Thursday, July 21, I was standing near a fertilizing-box filling a feeder when my attention was attracted by an unusual commotion in the way of extra loud buzzing, as of drones on the wing. I looked, and saw a queen rapidly flying toward the fertilizing-box, evidently her home. She was closely followed by two drones, one of which turned and flew off, but the other remained in pursuit. They were flying not six inches from the ground, and were not over eight feet from the fertilizing-box when the act took place. It was all done so quickly that I marvel at it, and I wish here to record the facts as I witnessed them. I could not see that the queen was flying in any but the usual way when returning to her hive, but the drone was unusually swift of wing. They were both flying rapidly; and as they flew the drone made two circles about the queen as though to head her off; and as these circles were made about the queen she rose slightly each time. Directly after making the second circle about the queen the drone flew at her as a worker flies with the intention of stinging in earnest. His abdomen was curved, and his wings rattled in about the same manner. Directly the drone was in contact with the queen there was a sudden lurch to side, and they went together some distance into the field until I lost sight of them. As they flew together they much resembled workers when they attempt jointly to bear off their dead. I remained by the fertilizing-box perhaps three minutes, and saw the queen return and enter, bearing the marks of having met a drone. I still lingered by the box, and soon saw a worker bear out the tell-tale white speck. I later opened the box, and saw the queen bearing the usual thread from male contact. A queen-bee is very swift of wing; but I am convinced that a drone is ten times swifter; for to be able to encircle the queen in the manner this one did, such must be the fact.

Swarthmore, Pa. E. L. Pratt.

SWEET CLOVER IN THE OATS; A BETTER WAY OF USING THE ROOT-GERMAN WAX-PRESS.

I have three acres of sweet clover, the white variety, which I sowed last year with oats. It is a fine growth, and has been blooming, and the bees have been literally swarming on it for several weeks. It is seeding very heavy, and is free from any thing else.

I purchased a German wax-press of you last winter, and followed your directions as to using it, and was rather displeased with the thing until very recently, as it was so terribly slow. I now use it differently, and am highly pleased with it, as I think I can extract three or four times as much wax in a day as by your method. My outfit is an old cook-stove out of doors; the wax-press, a three-pail copper kettle, and a water-pail.

To start the thing I fill the comb-basket about half full of loosely thrown-in combs, and put over it a pan to confine the steam, and do not use the press. I fill the pail with water, and set it on the back of the stove to be heating, and put on the copper kettle with water therein; and as soon as the water is hot I stir in combs until I have the kettle nearly full of melted combs. I then open the extractor and turn in the contents of the kettle, adjust the press, and fire up. I empty my pail of hot water into the kettle, and refill to be heating for the next batch. I work the press, and melt up a new batch in the kettle; and as soon as the press is ready to dump, another batch is melted ready for it. and so on, melting in the kettle, heating water in the pail, and pressing the wax out in the press.

I can also possibly suggest a slight improvement in wax-presses. If you will notice, there is always a quantity of free wax on top of the cloth covering the cheese after taking out the follower. If this is allowed to cool you will find a portion of the channels on the bottom of the follower filled with wax. The reason is, the cloth presses up into the ends of some of the channels, and thus prevents the wax from flowing out. I took the strips off my follower, and cut channels across them so that, when nailed on, there would be a free passage from one channel to the other, which permits a free flow of wax in all directions. This prevents any accumulation between the cloth and the follower. Henry Stewart.

Prophetstown, Ill.

SUMMER MORTALITY OF BEES DUE TO POISON.

Noting the article on page 694, I suggest that the mortality may be caused by the poisonous nature of the flora on which the bees are foraging at that particular season of the year. I have noticed a certain mortality of bees in this and other locations that was precisely the same in appearance when bees were working on poison oak, or ivy, as it is called in many sections, and have never noticed it at any other season. Sometimes only a few colonies are affected; again, there would be several thousands of bees scattered on the ground throughout the apiary, and nearly all colonies would show signs of disorder. There is not a sufficient quantity of poison oak in this section to afford forage for an apiary; but it is scattered about in very attractive masses of some extent, and is always eagerly sought by the bees. It will probably be found that some poisonous shrub yielding honey profusely exists in those sections, and the remedy or cure for the disease among the bees must be sought for in the source of their forage; and there is the probability that nothing but confinement of the bees — feeding if necessary — during the period of its bloom will afford relief. If confinement should be practicable a release daily at a late hour in evening would be beneficial.

Howardsville, Va. B. F. Averill.

HIGH-PRESSURE FEEDING OUTDOORS.

Since my article has appeared on page 660 I have received letters from the United States and from other places asking for information as to how I go about it, and asking me to give the plan in Gleanings for the benefit of its readers.

The feeder I use is made of the best white pine, well painted and paraffined. The float is also made from white pine ½ inch thick. This is also painted, and should be kept painted. so it will not become water-soaked and heavy.

My feeder is 6 feet long, 2 feet wide, 8 in. deep, and stands 2 feet from the ground, and should be under cover, thus protecting it from the wind and rain. When I am having combs drawn I use equal parts of sugar and water. Nothing is made by feeding sweets too much diluted. I have known of bee keepers here in Cuba to feed their bees with so diluted a feed that they would have to go round the next day and throw out the sour feed. That is what I call making a five-cent piece hide a dollar. The feeder should be well washed out every day or two so it will always be sweet. As a rule, bees do not like things very sour.

I wish here to impress on the mind of the bee-keeper who has to feed, when once commenced it is far better and cheaper to keep it up every day till finished. When one feeds one day and lets it go for two or three days and then feeds again, it is bad policy. Do not be in too big a hurry to build your swarms up while having foundation drawn—better to let the bees beg a little for foundation. The combs will be far more perfect. Do not try to economize by trying to use starters or half-sheets. Out of the 5000 swarms we have built up, not one starter or half-sheet has been used.

I once passed through a rich man's apiary, and he was using half-sheets of foundation, "Well," he said to me, "I suppose you do not believe in using half sheets of foundation, do you?"

"No, not yet." said I.

"Well," said he, "I'm too poor to use full sheets."

"Well," said I, "I'm too poor to use half-sheets."

Mr. Langstroth once told me, with much truth, it is far better to have less swarming and have bees in perfect condition.

C. E. WOODWARD.

Guanabana, Cuba.

[Since Mr. Woodward and others have referred to the feasibility of feeding outdoors we have been conducting some experiments here in Medina. Years ago we tried it on inferior sweets ; but because there were other bees, not our own, in the vicinity, we finally gave it up; but since that time the other bees have disappeared, and we finally decided to try outdoor feeding again. The results have been entirely satisfactory. Instead of robber bees nosing around, and instead of queen-cell-building colonies refusing to work on the cells at times, or at other times tearing them down when started, they are accepting the cells and doing good work. Indeed, the conditions are very much like a natural light honey-flow, and our boys are able to do much of the work in the yard with comparative peace and quietness Our experience thus far shows that, when outdoor feeding has been begun, it must be continued and not worked intermittently.—ED.]

BEE-KEEPING AMONG THE ROCKIES; THE 20 LB. STONE ON THE HIVE.

Mr. Root:—I wish to express my appreciation of your department of "Bee keeping among the Rockies." Mr. Morehouse can make it interesting. He had a good bee-paper in the *Rocky Mountain Bee Journal*, and my commercial conscience has pricked me several times because I never encouraged him by my subscription.

I notice in GLEANINGS occasionally your fling at the "20-lb. stone" on hive-covers. Acting on your suggestions I left them off, and next morning found between 20 and 30 covers on the ground. May I ask what would be your remedy in such a case? How shall we keep the covers on? Sitting in your office in Medina it must be comparatively easy work to give instruction in bee-keeping; but I have the impression that the bee-keepers themselves who are familiar with the conditions in their locality sometimes know what they want, and why they want it; so until something better is offered I shall stick to the "20-lb. stone," which, in this locality, probably weighs about 5 lbs.

G. F. HYDE.

Lovelock, Nevada, July 26.

[This statement of our correspondent concerning the excellence of the new department was evidently made before he was aware of the death of Mr. Morehouse. This is only one of several statements of a like character that we have received.

If our correspondent imagines that the editorial matter in this journal receives its inspiration at the "office desk" he is laboring under a great mistake. Besides being brought up among the bees from boyhood, I have spent five or six summers among them, working constantly with them. I have traveled a great many thousand miles to study the methods used by bee-keepers in all parts of the United States; and scarcely a day goes by when I am not in close touch with all the work and experiments that are being carried on in all our own yards; and in the height of the season I go to the outyards, take off my coat, and work with the bees to help the boys out. So much for "office desk" editorials.

Our correspondent is evidently using a quilt or enamel cloth under the covers. If such is the case, a 20-lb. stone or some other sort of fastening is necessary to hold the cover on the hive. But it is the practice of most bee-keepers to dispense with all cloths and quilts. When that is the case the bees hermetically seal the cover on the hive where it will stay until pried off by the bee-keeper with a knife, screwdriver, or hive-tool. I have traveled all through the western part of the country, and been in hundreds of yards; and, if my memory serves me rightly, the 20-lb. stone is used in only about one apiary in a hundred, the great majority preferring to dispense with quilts and cloths, leaving the cover to go over the bees when it will be fastened. If shade-boards are used, then it is necessary to have something to hold them on; but as a rule, even then bee-keepers apparently prefer to seek natural shade, thus dispensing with extra pieces and the lifting of heavy weights.—ED.]

POISONED HONEY FROM COTTON.

J. W. Davidson, of Ditto, Texas, asks if you can give some advice as to the effect poisoning cotton with Paris green will have on bees. Will it affect the honey? I note your answer, Mr. Editor; but the last part of his question you did not answer—that is, will the poison affect the honey? I am greatly interested in this, and should like to know if it is safe to use honey in localities where Paris green has been used on cotton. S. H. McCullough.

Lacoste, Texas, July 5.

[The honey gathered while cotton is sprayed, if it did not kill your brood it would probably do no damage to human beings; but before eating it I would suggest that it be placed in the hands of a chemist to ascertain whether it have enough poison to be dangerous.—Ed.]

SWARMING TO BORROWING.

I had to hive a swarm three times in June. The third swarm I hived on empty combs began to carry honey from the old hive to theirs. This they did for two days, taking no less than 5 lbs. The bees in the old hive never bothered them at all. To-day I had a ten-frame-hive swarm. I never had them swarm as late as this before. As soon as I hived them I transferred the old colony to an eight-frame hive. I saw two young queens on frames. Bee-men claim a prime swarm issues about 8 days before young queens hatch. How do you account for this? This is the first swarm. They came out yesterday and went back to-day. I saw a queen with them.

Trenton, N. J., July 11. G. Grover.

[In the matter of swarming, bees vary greatly from the generally accepted rules. They may begin swarming as early as May, and continue on into September. The conditions of the weather have every thing to do with it. Sometimes swarming will begin very early, and at others it will be quite late. The colony that swarmed and afterward went back and took honey from the old hive was simply doing what we call "borrowing," with no intention of returning. It is a species of robbing; but because these bees have the scent of the old colony, the old colony does not put up any resistance.—Ed.]

GASOLINE VS. STEAM ENGINES FOR LIGHT POWER.

I have been thinking of purchasing a gasoline-engine, but don't know what kind to buy. I have read Gleanings long enough to know you are a practical man, and know something about machinery. I take the liberty of writing and asking you. I have a catalog of the Olds, Alamo, and Weber. I think the Alamo the best-looking machine.

Is the gasoline-engine a durable machine? Are they safe? Does it cost much to operate them? G. F. Turner.

N. Palermo, Maine.

[Gasoline-engines are a little more difficult to handle than an ordinary steam-engine, but much more economical to operate, and are ready for instant service at any time—no need to wait to generate steam; no danger of burning out boiler, getting water too low, and no danger from explosion providing a light or flame be kept away from the gasoline-tank. Even then there is no more hazard than in the use of gasoline-stoves — indeed, not so much, because the heat or fire is generated wholly within an iron box, the cylinder. The gasoline-engine is very durable, and will outwear with less adjustment than a steam-engine, for the simple reason that it is "single-acting" and not double. Our experience has shown that the boxes may be very loose and still the engine will run very well. The relative cost between steam and gasoline for the same amount of power per hour is about 50 per cent in favor of gasoline. Any of the engines named in your letter are good.—Ed.]

BINGHAM SMOKERS AND ROOT'S EXTRACTORS CRITICISED BY A FRIENDLY CRITIC.

As we in California have nothing to do but get ready for next year we have much time to think and tell the other fellows what they should do. I will first tell you what I have done, then tell you what the Root Co. ought to do, also Mr. Bingham.

I have produced 15 cases of extracted honey with 250 colonies of bees. That is something. Now, Mr. Editor, I think your invitations of well-meaning criticism are along the right line; for if the manufacturers are not criticised for the goods they turn out it is natural for them to suppose they are making things *just* right; neither do I believe in a fellow venting his spleen. If we see or imagine we see defects (for we may be honest in our opinion and still be mistaken), let us call attention to them, then offer suggestions to remedy the evil.

I most heartily indorse the criticism of the Bingham smoker—not the principle, but the smoker. It is all right, "only needs fixin'." I have never had one yet (and I have bought several) but I had to fix it. They might be all right to manipulate three or four colonies with, but three or four hundred is different. Neither is it necessary for a *good* smoker to cost $5.00. My suggestion is that Mr. Bingham take two pieces of about No. 20 or 22 iron; cut them ¼ inch wide; bend them round so as to fit snugly around the barrel of the smoker; then fasten them to the bellows with two bolts in each end of the straps; also metal around the edges of the bellows to hold the leather; also No. 18 ¾-inch brads instead of the ¼-inch tacks. A smoker made that way would be serviceable without having to be made over.

As to price, it should not cost much more than the present smoker. Let Mr. Bingham put out the two smokers, sell each at a reasonable profit, then there will be no "kick" coming to any one. Mr. Bingham may take his seat and Mr. Root stand up.

The Cowan extractor No. 25 is a good machine; but as the Root Co. makes it it needs "fixin'." In extracting honey I always work from right to left. Hot water and honey-knives are at the right hand of the uncapping-box. Take the knife in the right hand; hold the comb in the left. After uncapping, step to the left and place the comb in the extractor. Take hold of and turn the crank with the left hand. Keep the right hand free to turn the baskets and handle empty combs with, the honey emptying out of the gate next to the uncapping-box. Now, in order to do that I had to reverse the frame that holds the gear; and by doing that it puts the brake-handle on the opposite side of the shaft from the operator. Now, the "fixin'" necessary was not much, but it caused me a twenty-mile drive to get a drill and tap to make the right hole to fit that screw. The next machine you make, put two holes in the hub of that brake so that it can be reversed and used either right handed or left. No, don't sit down yet — one thing more. The next machine you make, put a strap of good firm leather on for a brake instead of that spring steel, for the steel lasts only a short time; and, besides, it cuts the pulley that it rubs on. The leather is better in every respect. You may take your seat now; and if you will be good I may never call you up again.

Norwalk, Cal. J. W. GEORGE.

[The publishers of this journal are always glad to receive friendly criticisms from friendly critics, both on the contents of this journal and on the supplies they make for bee-keepers. We are sure Mr. Bingham will not object to those relative to his smoker, although from a mechanical point of view he may see a better way to remedy the trouble.

We thank you sincerely for the suggestions regarding the Cowan extractor. We had already anticipated some of them, and the 1905 machines will have a different form of brake entirely; but as to making it (the brake) reversible, we had not thought of that, but will take the matter under careful consideration.

I often see where improvements can be made in certain automobiles that I have had the pleasure of running. Sometimes I have written to the manufacturers, suggesting, in a friendly way, how in my opinion certain difficulties might be avoided. As a general rule I do not get a word of response or thanks; and as long as they "know it all," their machine will go on with the same old defects. The result will be that a competitor who is more progressive will take the trade away, and he should. I firmly believe that a manufacturer or builder should listen to all complaints or suggestions regarding the stuff he makes; and if he will not listen, the user or consumer should not be censured if he goes to the "other fellow" to get what he wants. But it very often happens that a suggested change is *not* an improvement at all; but all persons making such suggestions should receive a courteous answer and explanation why their ideas, if adopted, would be a retrograde step.—ED.]

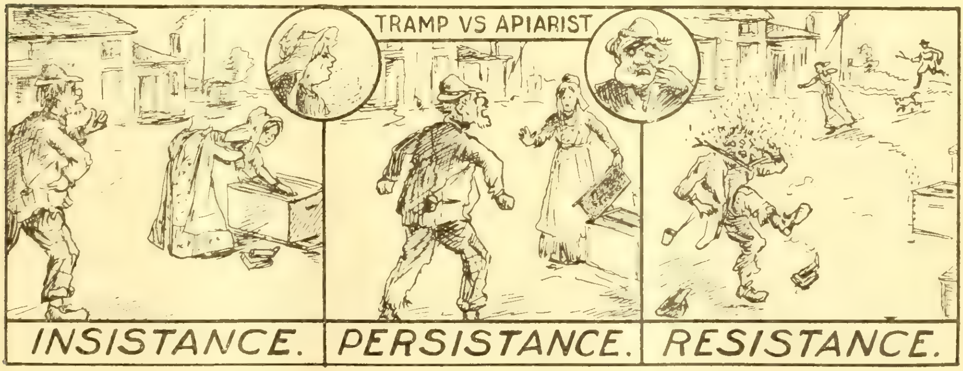
TOO MUCH SWARMING, AND LITTLE HONEY.

Can you tell me the reason our bees swarm so much? We let each colony swarm once, and then we put on top boxes, and the bees started to work in them, and worked in them one day, and then stopped, and have swarmed twice since, and do not seem to work as they ought to.

HOLMES H. TINGLEY.

Lowell, N. B., Can.

[A little honey-flow is quite apt to result in more swarming than a heavy one. Conditions some seasons are just right to cause bees to do what they did in the case above. The fact that you have had excessive swarming, and the further fact that the bees did not seem to work as they ought to, would seem to indicate a light honey-flow; but usually after a swarm has been hived it will stay contented and go to work in the supers But in your case it would have been better, perhaps, to have put a frame of unsealed brood in the brood-nest, as this would have a tendency to hold the bees better.—ED.]



QUEENS

Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

Last winter was a severe test on Bees,

But Quirin's Famous Leather-colored Italians

wintered on their summer stands, within a few miles of bleak Lake Erie. . . .
Queens now Ready to go by Return Mail.

Our new circular now ready to mail.

ADDRESS ALL ORDERS TO

Prices after July 1.

	1	6	12
Select	$ 75	$ 4 00	$ 7 00
Tested	1 00	5 00	9 00
Select tested	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight five-band breeders	5 00		
Palestine queens	1 50	8 00	15 00
Two-comb nuclei, no queen	2 25	12 00	22 00
Full colony on eight frames	5 00	25 00	
Four fr's brood, & 4 fr's f'd'n	4 00	22 00	

Special low prices on Queens and Nuclei in 50 and 100 Lots. Nuclei on L. or Danzenbaker frames.

Quirin-the-Queen-Breeder, Bellevue, O.

Victor's Superior Stock

Is recognized as such, to the extent that last season I was compelled to withdraw my ad. to keep from being swamped with orders. THIS SEASON I SHALL RUN MY . . . . . .

Thirteen Hundred Colonies Exclusively for Bees and Queens

—and will therefore soon be able to—

Have 2000 to 2200

Colonies and Nuclei in Operation

which warrants me in promising prompt service. Untested Queens $1.00; select untested $1.25; tested $1.50; select tested $2.50; breeders $4.00 to $7.00.
Illustrated price list free for the asking.

W. O. VICTOR,

Queen Specialist. Wharton, Tex.

OLDSMOBILE Construction.

It cost us $43.000 to build the first practical Oldsmobile. We have spent thousands on improvements since then.

The mechanical construction is the simplest, no delicate adjustments to get out of order. The parts are so perfectly assembled that hard knocks, severe and inexperienced handling will not effect its going qualities.

Every part is exactly right for the work it has to do. It is built to run over rough roads just as well as on the asphalt pavement, and it *does it*.

Send for our new catalog, mailed free. It tells about the Oldsmobiles, their increased power, speed and size; increased strength and weight of all the parts; larger seats, new safety starting device (from the seat), hub brakes, 3-inch double-tube tires. The entire absence of packed joints that leak and cause trouble.

We can prove their "road efficiency" to be the greatest of all runabouts because of the 5x6 cylinder developing seven horse power, weight 1100 pounds.

Oldsmobile Runabout, $650.00; Touring Runabout, $750.00; Tonneau, $950.00; Oldsmobile Delivery Wagon, $850.00.

Free demonstration by our nearest agent.

OLDS MOTOR WORKS,
DETROIT, - MICH.

CARNIOLANS AND ITALIANS.

Untested Queen 75c.; Six for $3.90; Twelve for $6.00. Tested $1.25. Best Breeder $2.50. Imported $4.00.

Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

F. A. LOCKHART & CO.,
Lake George, - New York.

Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years. We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness.*

Italians.

Gentle, prolific, swarm very little, hustlers to work, and a red-clover strain.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

IT DOESN'T PAY

to keep those poor colonies when a young vigorous queen from the best honey-gathering stock given *now* may make them your *best colonies* next season. We believe we have as good bees as there are for *business.* We rear our queens carefully, rejecting poor cells or virgins; guarantee them good queens and purely mated, or replaced free on notice. Our testimonials will compare favorably with any. One queen, 75 cts.; six for $3.50; 12 for $6 50; select tested, $1.00; six for $5; tested, $1.00; select tested, $1.50; extra select tested, $2.00.

J. B. CASE, Port Orange, Florida.

Queens by Return Mail

We are now breeding from three distinct strains, viz., Imported or leather color, Root's long-tongued or red clover strain, and our old strain of white-banded yellow Italians, or albinos. :: :: ::

August and September Prices

Untested, each........$ .65; half doz. $3.75; doz. $ 7.00
Warranted, each..... .75; half doz. 4 25; doz. 8.00
Tested, each.. 1.25
Select tested, each.. 1.50

We have also a full line of bee-keepers' supplies including The A. I. Root Company's goods. . . .
Root's Sections and Weed's Foundation a Specialty.
Send for our 32-page illustrated catalog. . . . .

W. W. Cary & Son, Lyonsville, Mass.

Virginia Queens

Italian queens secured by a cross, and years of careful selection. From red-clover queens and Superior stock obtained from W. Z. Hutchinson. I can furnish large vigorous untested queens 75 cts.; after June 15th, 60 cts.; tested queens, $1.00; after June 15th, 75 cents.

Write for discount on large orders.

CHAS. KOEPPEN,
Fredericksburg, - Virginia.

Red Clover and Three and Five Banded Queens.

Untested, 65 cts.; $7 per doz. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $3.25. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred special prices.

G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENNA.

MOORE'S STRAIN OF ITALIANS

AS RED-CLOVER WORKERS.

L. C. Medkiff, Salem, N. J., says: "I bought an untested queen of you last year, and her bees have filled three comb-honey supers, and did not swarm, while thirteen out of the fifteen other colonies did not get more than half that amount

I have queens from six different breeders, and I class yours 100 per cent above them all. Your bees worked very strong on the first crop of red clover. I know they were yours, because I floured them with a dredge-box and watched the hive. They also worked strong on the second crop of red-clover and lima-bean blossoms."

Untested queens, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5.00; dozen, $9.00. Safe arrival and satisfaction guaranteed.

Send for descriptive circular showing why my queen-trade has grown so fast. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Key.

The Best Stock!

Twenty years' experience in rearing Italian queen bees, and producing honey on a large scale has taught me the value of the best stock, and what the best queens reared from that best stock mean to the honey-producer. I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then by crossing these different strains and selecting the best and breeding from them I have secured a strain of stock that is the equal of any for honey-gathering.

> Delanson, New York, July 10, 1902.
> MR. ROBEY—Dear Sir: The queens that I bought of you two years ago were the finest lot, and the best honey-gatherers of any queens I ever had, and I have had over 1000 queens from the principal queen-breeders of the United States. E. W. ALEXANDER.

Warranted queens in any quantity, 60c. each. Safe delivery and satisfaction guaranteed or money refunded.

L. H. ROBEY Worthington, W. Va.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line Advertisements intended for this department should not exceed five lines. and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Second-hand Barnes foot-power saw.
THE A. I. ROOT CO., Medina, O.

WANTED.—Comb honey; state price, kind, and quantity. We pay cash. D. E. NUCKOLS, Rondo, Va.

WANTED.—Practical bee-man to sell honey all winter. THE SNYDER BEE & HONEY CO., Kingston, N. Y.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange catalog describing the best hive in existence, a double-walled hive for only 20c extra, for your name and address.
T. K. MASSIE, Tophet, W. Va.

WANTED —To exchange Parker Bros.' famous hammerless shot-gun, 12 gauge, factory price $65.00, good as new, for 350 sections of new comb honey—must be fancy white. Address, JOSEPH W. LEIB,
235 Wilson Ave., Columbus, O.

WANTED.—To know where I can buy 300 box or frame hives of bees cheap, in Southern States.
L. F. WAHL, Groton, N. Y.

WANTED.—To exchange a prolific one-year old Medina Clover queen for a good tested Albino or Carniolan, or $1 50 in cash. Cost me $3 00.
E. W. DIEFENDORF, New Lebanon, Cooper Co., Mo.

Situations Wanted.

WANTED.—Situation with a bee-keeper in Cuba or Jamaica, for six months or term of years.
F. G. DENZINGER, Olean, N. Y.

WANTED.—A positon in some apiary. Have had five years' experience among the bees.
WM. JOHNSON, Crowder, Mo.

WANTED.—Position with bee-keeper for bee-work in season, and almost any kind of work. Have had some experience with bees. Will make good greenhouse and garden man, and am good poultryman. Age 29, single, strictly sober. Can give reference. CARL ERIKSON,
R. F. D. No. 1. Osage, Ia.

Addresses Wanted.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—Full colonies of leather-colored Italian bees at $5.00 each. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Second-hand 60-lb. honey-cans. Good as new. Satisfaction guaranteed.
LEWIS C. & A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—Finest quality, extracted white-clover honey at 7½c. per pound, in cases of one new 58-lb. can. Sample, 8c. R. & E. C. PORTER,
Lewistown, Ill.

FOR SALE.—Our new, 1904, crop of white extracted honey, is better than ever this year, mostly new 60-lb. cans, 7½@8c. car, for clover and basswood; sample free. E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Five-gallon square tin cans used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Slightly damaged hives at a very low price; first-class in every way, Lewis make, both eight and ten frame. Can ship at once.
LEWIS C. & A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

FOR SALE.—500 colonies of bees in Root's 10-frame hives in fine condition. Will sell in lots of 50 or upward. Also fine 100-acre farm at a bargain. Write or call quick for full particulars.
UDO TOEPPERWEIN, San Antonio, Tex.

FOR SALE.—1000 supers of our own make for 4¼x4¼x1⅞ sections for Langstroth 8-frame hives, empty, at 13 cts. each. With section-holders and separators added at 30 cts. each. Write early, for they will not last long. Write us for bee supplies.
ROY A. WILSON, Kearney, Neb.

FOR SALE AT A BARGAIN.—200 col. of bees in S. W. Texas, with locations included in FINE BEE RANGE. For particulars address HOMER H. HYDE,
Cor. Alex. St. and Cinci. Ave., San Antonio, Tex.

FOR SALE.—900 colonies of bees in one lot, or 500 and 400 separately, located one to six miles from Montrose, Col., commanding one of the best alfalfa ranges in the West. Uncle Sam is now constructing the Gunnison tunnel to fully water the entire valley, which will make this the cream of all irrigated country. Address J. S. BRUCE, Montrose, Col.

FOR SALE.—Apiaries consisting of 500 colonies of bees; also, 1904 honey crop of 60,000 pounds of comb and extracted alfalfa honey. Address
DR. GEO. D. MITCHELL & CO.,
340 4th St., Ogden, Utah.

FOR SALE.—Queens! For the balance of season I will sell Italian queens from the very best honey-gathering strains. Untested, 50c. each; tested, 75c. each. W. J. FOREHAND, Fort Deposit, Ala.

FOR SALE.—440 colonies of bees in 8 and 10 frame Langstroth hives, all on straight combs. Also other bee-fixtures. Located in heart of alfalfa country. Would give possession 1st of October. Good reason for selling. COOPER & HOPPER,
La Junta, Colo.

FOR SALE. — 100 colonies of bees in 3-frame shipping-cases—no disease of any kind. Price $150.
J. N. MCCOLM, Plymouth, Wis.

RECEIVED this season three cars honey in new 60-lb. cans. Now empty, and must go out of our way. What will you give for all you want? "Hurry up."
J. A. BUCHANAN & SONS, Hollidays Cove, W. Va.

WANTED.—Cash offer for my ranch in Cuba. On the good road between two towns. Transportation by train, boat, or road. Stream of water runs through the place. 150 Danz. hives and all supplies necessary for coming *honey-flow this winter*. Only those meaning business answer. L. MACLEAN BEERS,
No. 101 Aguiar St., Havana, Cuba.

FOR SALE.—White-clover and buckwheat honey, comb and extracted; limited quantity. and good quality. Mail sample, 5c. W L. COGGSHALL,
Groton, N. Y.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

WARRANTED BEST QUALITY
WALTER S. POUDER INDIANAPOLIS, IND.
WARRANTED PURE HONEY
1 POUND

SQUARE FLINT GLASS HONEY-JARS.

Beauty, accuracy, and shipments without breakage are features that have justly gained for these jars the title of Standard. Material used in their make is the very finest flint glass, free from air-cells. They are tempered in large gas ovens, resulting in the toughest glassware that can be produced. They are put up in crates of 100, crates being so constructed that one can see what he is handling, and this is the secret of their safe transportation.

There is no package so desirable for honey as a package made expressly for the purpose. Experience has demonstrated this fact, and many have, by the aid of those jars, established a home market for their product instead of shipping to wholesalers at reduced prices.

Crate of 100 16-oz. jars and corks	$4 00.
Crate of 100 8-oz. jars and corks	3.00.
Crate of 100 5-oz. jars and corks	2.25.
Tin-foil caps for 16-oz. jars, per 100	.40.
Tin-foil caps for 8-oz. or 5-oz. jars, per 100	.30.
Corks for 16-oz. jars, per 100	.40.
Corks for 8-oz. or 5-oz. jars, per 100	.30.

Corks are always included with jars at above prices. Tin-foil caps are not necessary, but add much to the neatness of the package. These are made expressly to my order for these jars, fit perfectly, and are all stamped "WARRANTED PURE HONEY."

Directions for putting up honey in these jars so that it will not granulate, furnished free to those interested.

For labels, see our special catalog of lables. If you are contemplating making an exhibit of bees and honey at your State or County fair let me aid you. I can furnish every thing to make your exhibit complete.

Tacoma, Wash., May 28, 1904.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—I have now been using your honey-jars for about 10 years and like them very much. You have shipped me a good many thousand, and a broken jar in a shipment is the exception to the rule. Your method of crating is ahead of anything that I have ever seen in this line, and the quality of your bottles is excellent, not an air-cell in any bottle. Will want more in the near future. Very truly yours, G. D. LITTOOY.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

More Room

We now occupy the greatest floor space, and carry the largest stock of goods, that we ever did before. Our specialty is

Wholesale and Retail

Lewis' Goods

AT

Factory Prices.

Dovetailed hives Wisconsin hives, Champion Chaff hives, Improved Langstroth Simplicity hives, and our new hive which we call the Acme hive. Thousands of pounds of comb foundation; millions of sections in about 30 different sizes and styles, and everything the bee-keeper needs.

Do not fail to find out all about the

ACME HIVE.

Hundreds of them already sold, this year. Catalogs and plenty of information free. Let us estimate on your order.

C. M. Scott & Co.,
1004 E. Washington St.,
Indianapolis, = Ind.

NOW IS A GOOD TIME

TO REQUEEN.

REPLACE all old wornout queens with young, vigorous, and healthy ones. We can supply such queens for 50c each, by return mail. Our strain of three-banded Italians are the bees for honey; try them. Send for price list, and see what others say. Untested queens 50c each. Tested $1.00.

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race. $3 each.

W. H. LAWS, Beeville, Texas.

QUEENS! THE BEST can always be had at 75c each for untested; $4 25 for six; $8 00 per dozen. Tested. $1.50 each. Best breeders $5 each. Safe arrival and satisfaction guaranteed. **The JENNIE ATCHLEY CO., Box 18, Beeville, Bee Co., Tex.**

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published ***The American Bee-Keeper*** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

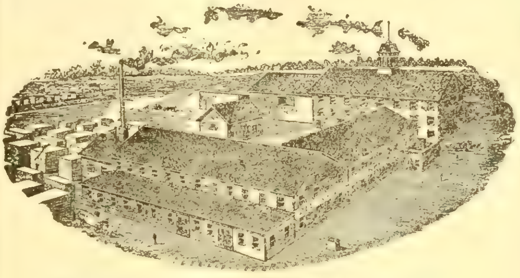
The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Kretchmer Mfg. Co., Chariton, Iowa.
Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

I. J. Stringham, New York,

Keeps in stock a complete line of

Apiarian Supplies 1 lb. sq. Jars, with corks, $5.00 gross.
No. 25 sq. Jars, $5.75 gross. 12-oz. Jars (best seller) $5 gross.
Liberal Discount on more than one gross.

Apiaries--Glen Cove, L. I. Salesroom--105 Park Place, N. Y.

SHIPPING CASES AND CRATES.

24-lb. no drip cases, 2-inch glass, $13.00 per 100; 12-lb., $8.00. Crates to hold 8 24-lb. cases, 30c. No. 1 sections, $4.00; No. 2, $3.50. Foundation, smokers, bee-hives, wholesale and retail. Send for list.

W. D. Soper, Route 3, Jackson, Mich.

BEE-KEEPERS' SUPPLIES FOR KANSAS

Bee-hives, honey, sections, comb foundation, and such other articles used in the apiary. *Write for price list.*

A. W. SWAN & CO. Centralia, Kan.

RUBBER STAMPS.

Stamp your name and address on your letters You will save yourself, as well as others, lots o trouble. A two-line stamp costs but **25c.** Many styles and prices given in our rubber-stamp catalog. Send for it to day. ¶ A stamp is neater than a label on sections, etc.

THE A. I. ROOT COMPANY. Medina, Ohio.

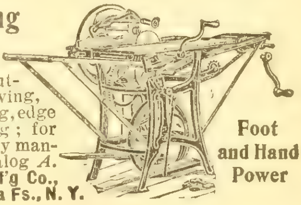
Pacific Coast Buyers

are directed to the announcement that

SMITHS' CASH STORE (Inc.)
25 Market St., San Francisco, California,

carries a complete line of apiary supplies, Root's regular and Danzenbaker hives, Dadant's foundation, and Union hives. Money can be saved by buying from them. Prices quoted same as Root's catalog for 1904, with carload rate 90c per 100 pounds added. This saves buyers $1.50 per 100 pounds in freight or 36c on each hive.

Wood-working Machinery.



For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A.*

The Seneca Falls M'f'g Co., 44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

NEGLECTED TREASURE

BY MRS. E. H. HAFFORD.

'Tis sad, I must relate, that in almost every State
 There are apiaries scattered here and there;
And because of sundry stings the owner seldom brings
 His smoker to examine them with care.

He does not know a queen, be he waking or in dream,
 From a worker, or a drone with noisy buzz;
Nor can he understand how easy face and hand
 May be made immune with simple veil and glove.

'Tis the queen that tells the story of failure or of glory,
 Be your apiary large or small;
And let me kindly mention, that, without some small attention,
 You might as well have kept no bees at all.

There is lots of wasted honey that might be turned to money
 If bees were only given simple care
And the time you thus employ would bring health and wealth and joy,
 And sweetness to your home and daily fare.

SPECIAL NOTICE

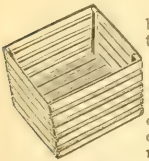
Special Notices

By Our Business Manager.

We can now supply The Irish Bee-Guide, by Rev. J. G. Digges. It is divided in three parts—The Honey-Bee; Hives and Appliances; and Modern Bee-keeping; 32 chapters; illustrated; 220 pages; cloth bound. Fully up to date, and worthy a place in every bee-keeper's library. Price 90c. Postage 10c extra.

We have before us a copy of the new edition of A Modern Bee Farm, by Sam'l Simmins. This book is fully revised and up to date, and while the methods are largely British the book contains so much of value that we heartily recommend it to our readers. You are sure to be pleased. Cloth bound. Price $1.85; postage 15c.

BUSHEL BOXES.



The season is at hand when bushel boxes are needed for handling potatoes and other farm crops. The accompanying cut shows our all-slatted box which has been used for years, and is a most popular box. It is 16 inches long by 13½ wide and 12½ deep, inside measure, holding a heaped bushel when level full. One box may be nested inside of two when empty, so they can be handled in bunches of three. As packed, there are 14 in a bunch — 2 nailed up and the other 12 in flat, with nails included. We usually make them with oak corner-posts; and, so made, the price is $1.90 per crate of 14. We have quite a stock on hand, packed ready for shipment, of all-basswood slats, no oak corners. We offer these, to close them out, at $1.75 per crate; ten-crate lots, 5 per cent discount.

AIKEN HONEY-BAGS.

We did not include these bags in our catalog this year because we wanted to see them more generally tested in different sections of the country, and proven a satisfactory package everywhere before doing so. We are prepared to supply them, and have arranged for a 1-lb. size in addition to the four other sizes sold heretofore. We are now supplied with all sizes.

1-LB. SIZE, 3½x5½.

100	$ .65	1000	$5 50
500	3.00	5000 @	5.25

2 LB. SIZE, 5x7½.		5-LB. SIZE, 7x10.	
100	$ .80	100	$ 1.20
500	3 75	500	5.50
1000	7.00	1000	10.50
5000 @	6.60	5000 @	10 00

3½-lb. SIZE, 6x9½.		10-lb. SIZE, 10x10½.	
100	$1.00	100	$ 1.50
500	4.75	500	7.00
1000	8.75	1000	13 50
5000 @	8.25	5000 @	13.00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2 00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

EXTRACTED HONEY.

We keep on hand a large stock of extracted honey from different sources, and are prepared to supply at the prices shown below. The following flavors are usually in stock.

PRICES.—F. O. B. MEDINA, CHICAGO, OR PHILADELPHIA

Kind.	In single five-gallon cans.	1 case of 2 five-gallon cans.	10 cases of 2 five-gallon cans.	In one-gallon screw-top cans.	Case of 6 or 10 one-gallon cans.
	per lb	per lb	per lb	per gal	per gal
White Clover	8½	8	7½	1 20	1 10
Basswood	8½	8	7½	1 20	1 10
Alfalfa	8½	8	7½	1 20	1 10
Orange	7	6½	6	1 10	1 00
Amber..........	6½	6	5½	1 00	90

PACKAGES.

By far the largest part of our honey comes put up in the 60-lb. square tin cans, two cans in a case. We also get some in kegs and barrels. We agree to furnish it only in such packages as we happen to have. Unless you find price quoted for different packages, it is understood that we furnish only in 5-gallon and 1-gallon cans.

Special Notices by A. I. Root.

A. I. ROOT'S DEPARTMENT IN THIS ISSUE.

To-day, Aug. 13, I have just returned from a trip of about 400 miles through Ohio in my automobile. I expected to be around in time to furnish copy, but failed. Well, friends of my special department, please be lenient and I will try to give you extra space in our next issue to make up. This trip was taken with the view of studying humanity, and also of considering the question of automobiles on our public roads. I visited and passed through about a dozen county-seats besides a host of other towns and villages. I passed vehicles of every description, even going into the city of Xenia as the people were returning in the evening from their county fair; and during all this trip of two weeks' time I did not receive a single unkind word unless it was an expression from a boy on top of a big load of hay. He was a good deal worried for fear he would not be able to manage his team. He was more worried than the horses, however (which has been the case in a great number of instances); and all he said was, "I don't believe those blamed things ought to be allowed on the road." During this trip I have studied the men, women, and children of Ohio at a shorter range than I ever did before. Yes, I became acquainted with some of the babies, then the small boys and girls, young men and women, the middle-aged, and the old gray-haired grandfathers and grandmothers It has been said that Ohio is geographically near the center of our United States: and I believe it is also true that Ohio is in many things taking the lead. If this is true, may God grant that our fair State move circumspectly, especially if she is to "set the pace" for the other States of our glorious Union.

THAT "MISSING LINE"—SEE PAGE 613, JULY 15.

Quite a number of our readers have supplied the missing line referred to above, and it seems that it has been differently rendered; but perhaps the most correct form is,

A thousand welcomes you'll find here before you.

Another one is,

Kisses and welcome you'll find here before you.

I shall have something further to say in regard to the matter in the next issue.

Convention Notice.

The annual convention of the National Bee-keepers' Association will be held Sept. 27-30 in the auditorium of the Christian Endeavor Hotel, within 100 feet of the south entrance of the St. Louis fair. Vice-president C P. Dadant has just returned from the fair and has secured the best possible accommodations for the members.

Special Rates—Send 50c. to General Manager N. E. France, of Platteville, Wis., to secure charter certificate to insure your special rates at the above hotel. $1.00 a day lodging, or $2.00 a day board and lodging; otherwise higher rates are charged. Make it a point to attend the fair the week before or after the convention and thus continue your reduced board rates. Other hotels near, but higher rates charged. Market Street cars, west bound, in front of Union depot, will bring you direct to the above hotel without transfer.

N. E. FRANCE.

The Missouri State Bee-keepers' Association will meet in convention in St. Louis, Sept. 26, 1904, in the same hall to be used by the N. B. K. A. Further particulars to be announced later. Arrangements are being made by C. P. Dadant for our accommodations in connection with the National. W. T. CARY,
Sec'y M. S. B. K. A.

TEXAS BEE-KEEPERS FOR ST. LOUIS IN CAR-LOT.

We are making up a carload of bee-keepers to go to St. Louis convention together. Will leave San Antonio on the evening of Sept. 24, over Katy. If you are going, and wish to get with this crowd, or join it on its way out of the State, advise me. For full particulars and sleeper rates advise with H. H. HYDE,
Floresville, Tex.

NEBRASKA HEADQUARTERS
LOUISIANA PURCHASE EXPOSITION.

I see by the paper that the National Bee-keepers' Association will meet in this city Sept. 27. Of course, all will attend the fair; and as Nebraskans we ask that you so arrange the program that all may attend special exercises at Nebraska headquarters at 9 o'clock, when we will arrange a series of moving pictures for their especial benefit. I think you are one of the directors, and trust this request will be complied with. L. D. STILSON.

St. Louis, Mo., July 15.

OFFICERS OF THE NATIONAL BEE-KEEPERS' ASSOCIATION TO BE NOMINATED IN ADVANCE OF ELECTION.

The following from the General Manager of the National Bee-keepers' Association will explain itself:

One of the latest amendments to the constitution of the National Bee-keepers' Association provides that the Board of Directors may "prescribe equitable rules and regulations governing the nominations for the several officers," and the Board has just decided that the General Manager shall, in August, publish in the bee journals a call for a postal-card vote of the members of the Association for the nomination of candidates for the several offices (stating the offices) to be filled at the next election. On October 1st the General Manager, and one other disinterested member chosen annually by the Board of Directors, shall count the votes, and the two men receiving the greatest number of votes for each respective office are to be candidates for said office; the names of the nominees and the offices for which they are nominated to be published *at once* in the bee-journals.

In accordance with the foregoing, I hereby ask all members of the National Bee-keepers' Association to write me their choice of men as candidates for the following offices:

To succeed Jas. U. Harris, of Grand Junction, Colo., as President.

To succeed C. P. Dadant, of Hamilton, Illinois, as Vice-president.

To succeed Geo. W. Brodbeck, of Los Angeles, Cal., as Secretary.

To succeed N. E. France, of Platteville, Wis., as General Manager.

To succeed E. Whitcomb, of Friend, Neb., as Director.

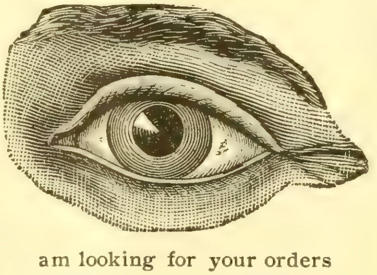
To succeed W. Z. Hutchinson, of Flint, Mich., as Director.

To succeed Udo Toepperwein, of San Antonio, Texas, as Director.

October 1st the votes will be counted, and the names of the two men receiving the most votes for each respective office will be published in the bee journals; then in November a postal-card ballot will be taken which will decide which of the nominees shall hold the office. Send all votes to

N. E. FRANCE, Platteville, Wis.

Mr. Bee Man!



am looking for your orders for queens. I please others, why not you? My trade has increased five-fold in the past four years. . . .

64-PAGE CATALOG.

J. M. Jenkins,
Wetumpka, Alabama.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

Dittmer's Foundation

RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

GUS. DITTMER, - - - AUGUSTA, WISCONSIN.

BINGHAM
SELF CLEANING
BEE SMOKER

If You Want a Smoker

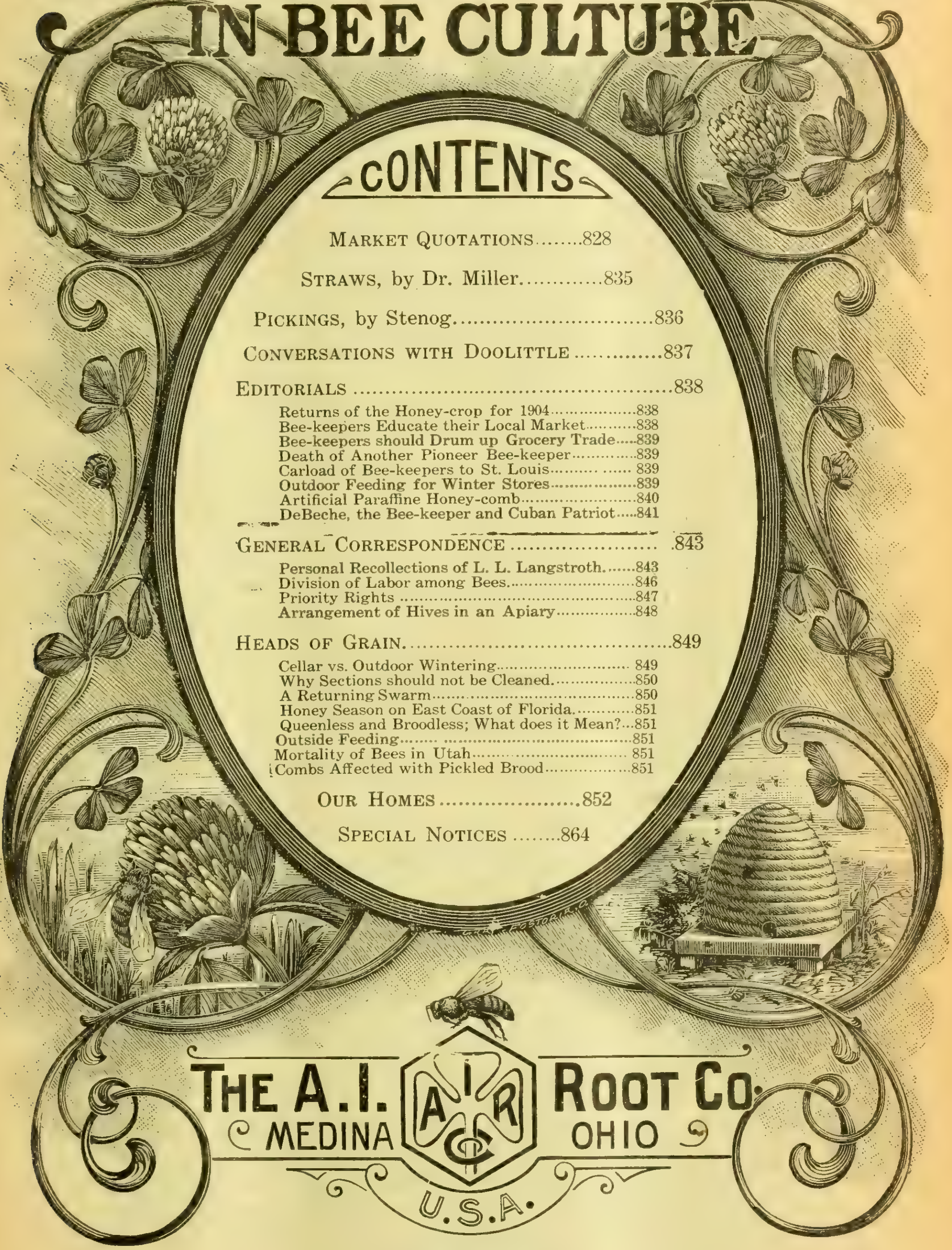
That goes without Puffing—Clean, Durable, and Handy—

Oldest, newest, and embracing all the improvements and inventions made in smokers, send card for circular to

T. F. BINGHAM,
FARWELL, MICH.

Volume XXXII. SEPTEMBER 1, 1904. Number 17

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eaestern Edition.

Entered at the Postoffice, at Medina, Ohio, as Second-class Matter.

GLASS

for

Extracted Honey!

We have a car load of glass jelly tumblers coming about Sept. 1st.

Get our prices; we can save you money.

Write at once giving sizes wanted so that they may come in the car.

LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

CAN SHIP TO-DAY.

¶ I have the largest stock, and the best assortment I ever had at this time of year, and can fill your order the same day it is received. I have more Hives, Supers, Sections, and Foundation, Shipping-Cases, and every thing you may need than I can possibly sell this season.

¶ But don't wait, send in your orders promptly, and they will be filled promptly.

YES, THEY ARE ROOT'S GOODS

AND SOLD AT ROOT'S PRICES.

¶ If you have not my 36-page catalog, send for it, free. Beeswax wanted, either for cash or trade.

GEORGE E. HILTON,
FREMONT, MICH.

Hurry Up Orders

FOR

Hives, Sections, Foundation, etc.

The supplies you order this month you want "right away"---"as soon as possible" That is what we are doing for others, let us do it for you. :: :: ::

For Root's Goods in Michigan---In a Hurry.

M. H. HUNT & SON, BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

* * *

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Queens Now Ready to Supply by Return Mail; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above. Prices for Untested, during June, one. 75; six, $4.00; twelve, $7.50.

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

MILWAUKEE.—The honey market is undergoing some change, and an improvement can be reported in conditions. There has been a more active inquiry for fancy grades, either comb or extracted, and some sales have been made of the same, and the prospects are quite flattering for a good demand this season, and we expect better values will prevail. We now quote fancy sections, 11@12; No. 1, 10@10½; other grades nominal. Extracted in barrels, cans, and pails, white, 6½@8; dark, 5½@6. Beeswax, 28@30. A. V. BISHOP & Co.,

Aug. 17. Milwaukee, Wis.

TORONTO.—We never found it so hard to report the honey market. We have tried to get prices for new crop, but, with one or two exceptions, we have failed to get those having honey to sell to set a price. The feeling is that there will be a short crop generally, and everybody is hanging back. They may do so too long. We have had a few offers of comb at $1.50 to $1.75 per dozen, and extracted from 7@10.

E. GRAINGER & Co.

Aug. 15. Toronto, Can.

TOLEDO.—We wish to state that the honey market at present remains quiet, as every one is waiting to see what the prices are going to be, and also the quantity of honey. Extra fancy comb honey in no-drip cases brings 15; No. 1, 14; very little demand for dark honey. Extra white clover, in barrels, 6; in cans, 6½; amber, in barrels, 5; in cans, 5½. Beeswax, 26@28.

GRIGGS BROS.,

Aug. 18. Toledo, Ohio.

BOSTON.—The honey market is in a very unsettled condition, or, rather, we might say that the absence of any demand practically makes no market. As a general thing, we do not look for a demand until from the middle of September to the first of October. By this time, cooler weather creates a certain demand. Prices at this time are, therefore, practically nominal. The very finest thing is bringing 16, and from that down. Stocks are coming in very slowly, but that is to be expected at this time. BLAKE, SCOTT & LEE,

Aug. 20. 31-33 Commercial St., Boston, Mass.

KANSAS CITY.—The demand for honey remains about the same, and strictly fancy white is selling for $3.00; No. 1, $2.75; amber, $2.25 to $2.50. Extracted, 6@7 per pound. Beeswax, 30. We look for a big demand for honey next month. C. C. CLEMONS & Co.,

Aug. 19. Kansas City, Mo.

SCHENECTADY.—Receipts of white comb honey quite liberal; no dark. White selling at 13@15, according to style and quality; extracted, 6@7. Write for particulars about marking, shipping, etc., before sending us your honey. CHAS. McCULLOCH,

Aug. 18. Schenectady, N. Y.

CHICAGO.—Some new honey is on sale. No. 1 to fancy white comb brings 12@13; so far the demand is of a slow nature. Extracted, good supply, and white grades sell at 6@7; amber, 5@6, according to kind, quality, flavor, and package. Beeswax, 28c. R. A. BURNETT & Co.,

Aug. 18. 199 South Water St., Chicago, Ill.

CINCINNATI.—The tone of the comb honey of this year's stock is becoming stiffer, producers claiming it to be not so plentiful and therefore ask higher prices. I quote fancy white comb honey 13½@15. Extracted is showing no change; amber, in barrels, 5¼@5½; in cans, ½c higher; water-white alfalfa, in cans, 6½; fancy white clover, in barrels, 6½@8. Beeswax is more plentiful, brings 28c. C. H. W. WEBER,

Aug. 19. Cincinnati, O.

DETROIT.—Nearly all old honey off the market, and not very much new honey coming in. Storekeepers are not in a hurry to stock up much before October. Commission houses report receipts small. Prices for fancy, 14@15; No. 1, 13@14. No dark honey in. Extracted, 7@7½, with few sales. Beeswax, 25@26.

M. H. HUNT & SON,

Aug. 20. Bell Branch, Mich.

ALBANY.—Honey market picking up some now with more inquiry for new crop in good order. The trade favors honey packed in handle racks or crates, now as it seldom comes out of order. We quote white comb, 16; No. 1, 15; No. 2, 13@14. Extracted, white, 7@7½; mixed, 6½@7. H. R. WRIGHT, Albany, N. Y.

Aug. 29.

NEW YORK.—A few lots of new comb honey have arrived, but not enough to establish a fixed price in quantity lots. We do not expect large receipts before the second week of September, and will not be able to give definite quotations until that time. Extracted honey is in fairly good demand at unchanged prices. Beeswax dull and declining, market price now being 27@28.

HILDRETH & SEGELKEN,

Aug. 19. 265-7 Greenwich St., New York.

DENVER.—No. 1 white comb honey per case of 24 sections, $2.50@$2.75; No. 2, $2.25@$2.40; white extracted, 6¾@7½. Beeswax wanted, 22@25 per pound, according to color. Receipts of new comb honey are increasing, but local demand is light, owing to warm weather and abundance of small fruits.

THE COLORADO HONEY PRODUCERS' ASS'N,

Aug. 20. Denver, Col.

STANDARD BRED QUEENS.

BUCKEYE STRAIN RED CLOVER.
GOLDEN ITALIANS. CARNIOLANS.

By Return Mail. Safe Arrival Guaranteed.

PRICES	ONE	SIX	TWELVE
Untested	$0.75	$4.00	$7.50
Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select Tested	2.00	10.00	18.00

Select Breeders, each $3.00
Two-frame Nucleus and nice Queen 3.00

THE FRED W. MUTH CO.,
No. 51 WALNUT ST., CINCINNATI, OHIO

SAN FRANCISCO.—Comb honey, new crop, 9@13. Extracted water white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Beeswax, 28@29.

ERNEST SCHAEFFLE,
Aug. 12. Murphys, Cal.

FOR SALE.—75,000 pounds of fancy and A No. 1 comb honey, 4x5 sections, all white. Will deliver from 3000 to 5000 pounds weekly until May 15. Will sell all or in part to suit, f. o. b. Havana, Cuba. Address
FRANK REIMAN, San Nicolas, Cuba.

FOR SALE. — Our new crop of extracted honey, consisting of white clover, raspberry, and clover and basswood mixed, is now ready for the market. It is in 60-lb. cans, two in a case; also 10,000 lbs. of amber, in barrels and cans. Say how much you can use, and kind, and I will mail you a free sample and quote you our lowest price. E. D. TOWNSEND, Remus, Mich.

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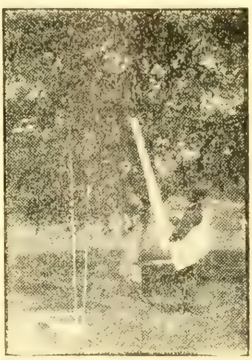

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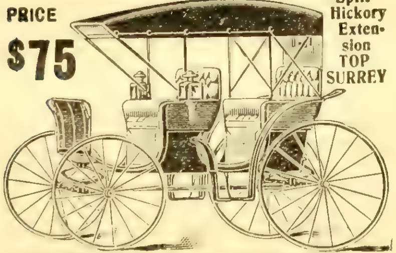

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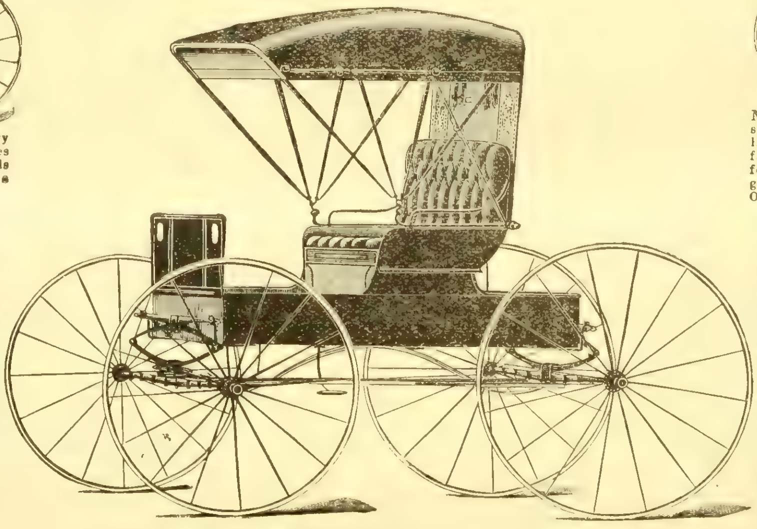

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Split-hickory wheels with screwed rims, round edge steel tires set hot; long-distance axles; cemented axle-beds; oil-tempered springs; choice of Bailey body loops or wooden spring-bar; 16-oz. imported all-wool broadcloth trimming; spring cushion and spring back; genuine enameled-leather quarter-top, made absolutely water-proof; reinforced back-curtain; 16 coats of paint, with oil and lead foundation; all wood-work carried 100 days in pure oil. Option is given of any color of gear. Body can be plain or fancy striped. Has full length velvet carpet with panel carpets; 13-in. padded patent-leather dash; side-curtains; storm-apron; quick-shifting shaft couplings; shafts have heel-braces, corner-braces, and 36-inch point-leathers, with round-leathers at single-tree and at hold-back straps.

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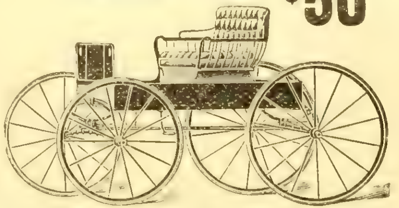

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about where his bread and butter is coming from. So writes E. D. Townsend in the August issue of the Bee-Keepers' Review, and he gives the reason why. He has been a bee-keeping specialist for several years, making his living solely from bees, and he tells how he has done it, and shows how any extensive bee-keeper can be almost absolutely certain of getting at least a fair crop of honey each year. His article on this subject is the most encouraging reading for a bee-keeper that I have ever read.

Send ten cents for the August issue of the Review, and the ten cents may apply on any subscription sent in during the year.

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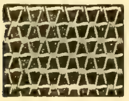

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A Journal devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

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$1.00 per Year

Vol. XXXII. SEPT. 1, 1904. No. 17

Stray Straws

By Dr. C. C. Miller.

A PLURALITY of eggs in a queen-cell is a reliable indication of the presence of laying workers. For the first time I found an exception the other day—two eggs in a queen-cell with a laying queen. But that happens only once in forty years.

SOMETHING NEW all the time. I enclose a sample of pollen that was coming in plentifully some days ago. It is dull now; but when fresh it was a distinct bright green. I wonder what it is from. [The pollen has been examined, but it is a little greener than any thing we have here. Perhaps you have a little nephew who can chase the bees up to see what they are getting it from.—ED.]

PHACELIA doesn't come up to expectations. I have a patch about ten feet square that I've been watching closely. The bees don't work on it as thickly as I expected, from having seen them on a few plants years ago. Possibly that was in a time of dearth. A patch of buckwheat would have more bees on it. Horses will eat it, but do not seem to hanker for it; neither does a bed of it look as pretty as I expected—don't believe it's worth booming in this locality.

HOW DID IT turn out when you made a colony queenless? How old were the larvæ chosen by the bees? If you haven't tried it, it will take only two days to do it, and you can hold the footnote to this Straw that length of time. It won't kill me if you say at Medina they choose larvæ just before they're big enough to be sealed. [The bees will at the start take larvæ of the right age, but later on keep on building cells for larvæ that are too old. So far I think your contention has been sustained.—ED.]

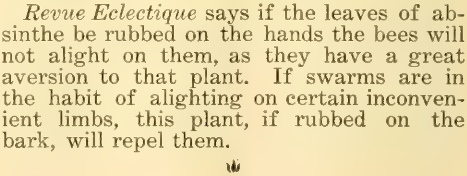
JUST NOW I'm enjoying *the luxury of pain.* Propped up with pillows at the typewriter, to which I could sit down only with knife-thrusts of exquisite pain in my back, with the same prospect before me on arising, I think I was never more filled with gratitude in my life, as God has given me so many years all through my life when I was free from such suffering. [The foreman of our printing department once said, during a fit of sickness, "Be happy when you are well." I have thought of that a good many times, both when I was sick and well; but when we can be happy with knife-thrusts and exquisite pain in our sides and backs we have to have a great deal of the grace of God in the heart; and I congratulate you, doctor, on that state of being. But we sincerely hope this knife-thrust you speak of is more painful than serious. We are not quite ready to spare you, and trust that, by the time you read these lines, the pain will have all disappeared, and that you will be happier still if possible. And I am sure I am voicing the opinion of all of our readers when I say, "Blessings on you, and may the Lord restore you to your usual health." We will even go so far as to forego the pleasure of Straws if the rest will hasten that recovery.—ED.]

THAT PRELIMINARY VOTING for candidates of the National—see p. 821—is an excellent thing; but it is to be feared that there will be some misunderstanding. The names of the two men receiving most votes will be published, and the November ballot "will decide which of the nominees will hold the office." Some will understand from that that no other votes of the November ballot will be counted except for these two men. Surely any member should be allowed to vote for whom he pleases. Even if Mr. France is required to publish the two highest names, there's no law against his publishing others, and it would be a good thing to publish at least the five highest. Possibly the third or fourth highest might be the successful one. It would also be a help toward deciding on candidates in future elections. [Of course, it is understood that any one can vote for any one he likes. Whether it is best to increase the number of candidates in the field is a question I am not able to answer. I think, however, I would favor the plan that is already put out by the committee.—Ed.]

BABY NUCLEI "will not prove to be satisfactory unless they have brood, a little feeding, and they must be handled without any smoke the greater part of the time," page 792. Is there any need to use smoke *any* of the time? They're about as gentle as so many flies, even if the colonies from which they are taken are not noted for gentleness. If, as a rare thing, one of them should resent interference, just hold right still for a few seconds till their minds have time to clear. I saw Adam Grimm do that years ago with nuclei not much larger than the ones now so prominently before us. Brood and a little feeding will no doubt help and hasten matters, but never a brood nor a food have they had from me, and they have by no means been failures. Very likely, with brood and food there would be quicker work and fewer failures, and one who has plenty of time can use them. If one is very busy it may be cheaper to have a larger number of nuclei, and save the time and bother of brood and food. I wonder if you've tried it without brood or food at Medina. [Yes, sir, 'e; but much better results are secured with brood and feeding; and, besides, the beginner or the person who has never tried these baby nuclei should have favoring conditions to start with at least. We have succeeded without brood, but do not believe the average person could.—Ed.]

BRO. DOOLITTLE, you are entitled to credit for the discovery of the law that from 11 to 1 a queen is on one of the two outside combs of brood, if there is such a law, and I have no proof that there is not. But it doesn't seem that you make any use of your knowledge of the law, for your instructions on page 794 are to look carefully over each frame in order through the whole hive. Now, if there are only two frames in the whole hive on which the queen should be found, why not quietly lift out those two frames at the start, and save the time of handling the others? Then it will be time enough to look over the other combs afterward in the exceptional cases where the queen is on one of the central combs. [Neither have I any proof that Mr. Doolittle is not right. But it seems to me the queen is liable to be anywhere in the hive where there is room for her to lay. It may be on the one side or the other, or in the center. My rule is to look for fresh-laid eggs. She seems to make a sort of progress, moving slowly from one comb to another. If there are very young larvæ in one comb, and eggs in the next one, she may be on this comb; but if not, on the next one. I shall be glad to believe that our friend is right, and would therefore like to get reports from our subscribers who have made this subject a matter of careful observation.—Ed.]

DR. E. F. PHILLIPS says, p. 802, "As is well known, a young virgin queen is normally accepted without any difficulty by any colony which has been queenless long enough to know its queenless condition." Quite true; but is it the whole truth? Is it not true that a virgin young enough will be accepted in *any* colony? That truth, if it is a truth, is a discovery of my own, and one is likely to be partial to one's own babies, so I should like to know if others have found any exception to the rule that a virgin less than a day old (I'm not certain about the exact age—it may be a little more or less than that) will be accepted in any colony, queenless or not. I've tried it many, many times, and I think there has been no exception as yet. When a virgin is under a day old, the bees don't seem to think there is any thing unusual about her—they treat her with indifference. If put into a hive with a laying queen, she has been accepted with the usual indifference. After she has become a little older, the bees seem to discover that she is of royal blood with aspirations; and if their queen is all right the virgin will be killed. If their queen is one that they desire to supersede, the virgin is cherished and treated with the respect due to royalty. I have given a baby virgin to a colony with laying workers, and in due time she monopolized the egg business. The fact that no one has as yet disputed my statements made several times in the past few years makes me somewhat hopeful that there are no exceptions to the rule; but I'd like to have the observation of others. The rule is of value if true—handy for laying workers; and when I take a laying queen from a nucleus I always drop in a baby virgin if I have one. [You may be right; but it seems to me that a very young virgin receives some sort of attention more than the average young bee. I think you are right that even bees that are queenless will not be hostile toward the young mother to-be.—Ed.]


Pickings from Our Neighbors' Fields
By
"Stenog."

Revue Eclectique says if the leaves of absinthe be rubbed on the hands the bees will not alight on them, as they have a great aversion to that plant. If swarms are in the habit of alighting on certain inconvenient limbs, this plant, if rubbed on the bark, will repel them.

◆

A Holland-Dutch bee-journal says a very nice varnish for furniture can be made by dissolving propolis in alcohol and then straining it. By the way, who has ever made a quotation on propolis by the pound? Perhaps many a nice penny is flung away on this rather troublesome substance. As Dr.

Miller has such an abundance of it, perhaps he can enlighten us.

* * *

A German journal announces the death of Michael Ambrozic, of Moistrana, Austria. He was one of the best-known bee-keepers in Europe, his advertisements for years occupying a large place in German bee-journals. He was a very progressive man, and will be greatly missed.

* * *

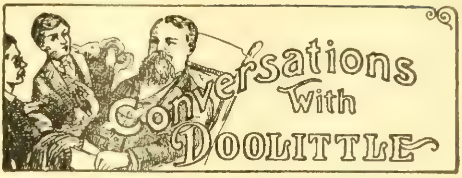
According to a writer in *Rev. Eclectique* the marked increase in the honey-flow at times during thunderstorms is owing to the electricity permeating the soil and accelerating the outward movement of the fluids in some plants. However that may be, it is certain that lightning often does promote the secretion of nectar.

* * *

Mr. P. Noblecourt, writing to *L'Apiculteur* from a village in France, says, in showing how slowly improved methods gain a footing in some localities, "At Aubencheul frame hives were not known [a short time ago]. During last winter I made four new ones which drew the attention of some friends who made some to transfer in in May. The harvest was good in our country. Bee-keepers here have always been in the barbarous habit of suffocating their bees to get the honey and take the wax, hence they could not profit by good years to build up their apiaries. In winter they saved but a few colonies in straw baskets or skeps. As for an apiary, none exists here except one at Villers, containing four Layens hives in a magnificent garden. I intend to make the new system known by giving and lending books and pamphlets treating on apiculture. Such is the progress (slow enough) that apiculture is making in our country." That writer is a born missionary.

* * *

L'Apiculteur for August, in its honey reports for Havre, Marseilles, Hamburg, and Belgium, reports sustained and increasing prices on foreign honey. Chilian honey seems to cut a wide swath in Europe. Concerning the matter of cutting prices the editor says, "The members of the Central Society, on the 19th of June, decided to ask 115 or at least 110 francs, and that price would have been sustained by the Parisian dealers. But just at that time a Gatinais house scattered circulars broadcast among grocers, offering superfine honey at 105. To offer honey at such a price, that house must have had some guarantee from some one against low prices. Whose fault was this, if not the producers', who sold without informing themselves as to what was going on around them? It seems to us the prices of 1903 should have been sustained, as the existing stock in the hands of wholesalers does not seem to be considerable." That's another case where those most interested pull trouble down on their own heads as well as on their neighbors, through lack of information.



EMBRYO LIFE OF THE BEE.

"Can you tell me, Mr. Doolittle, how long it is from the time the queen lays the egg for a worker bee till the same emerges from its cell a perfect bee?"

"I do not know that I can, Mr. Barber."

"I thought I had read, some time ago, somewhere, that you thought 21 days was the time."

"I presume you did, for I have so written; and that would be what I would say now if I told you without any qualification or explanation. But these qualifications and explanations would make it so that I could not place any exact time which would meet the wants of a critic. But 21 days is near enough for all practical purposes."

"I think you claimed about six days in the larval form in that article of yours which I read."

"Very likely."

"Well, how do you reconcile that time with the four and a half to five days as given by others?"

"I do not try to do the reconciling. I let the others do it."

"How is that?"

"Quinby gave in his 'Mysteries of Beekeeping Explained,' which book was published about 1865, that the egg, as laid by the queen in worker-cells, hatches in three days to a larva; this larva is fed by the nurse bees six days, when the cell containing it is sealed over, remaining thus for twelve days, during which time it undergoes the change 'from caterpillar to butterfly,' when the covering to the cell is eaten off and it emerges a perfect bee — that being 3, 6, and 12 added together, giving a period of 21 days from the laying of the egg to the perfect bee. Quinby's figures and dates have stood the test of nearly forty years, and it is not for his followers to try to do the reconciling, but for the ones who give different figures to prove that *they* are correct."

"Does not the weather make any difference with these figures?"

"Yes, and that was the reason I said that 21 days was not exact enough to meet the wants of critics. Very warm weather hastens this development to a certain extent, and cold weather retards the same."

"Have you tried the matter for yourself?"

"Yes. Always being anxious to know things for a certainty, so far as they can be ascertained, I have conducted many experiments along this and other lines. To test this I placed a frame of nice worker comb in the center of a populous colony about the first of June, and watched it nearly every hour till I found eggs in it; and when so found the hour and day were put down on the top-bar of the frame. As my diary tells it, in about two hours less than three days I found larvæ hatched, and in six days and two hours I found the first cells of brood fully sealed over. In 11 days and 23 hours I found the first bee out of its cell, and quite a few biting their cells open near where the first one had emerged."

"That was pretty close to Quinby, wasn't it?"

"Yes; and from this trial I was entirely satisfied as to the correctness of Quinby till a few years ago, when I was withstood by a bee-keeper of considerable prominence who claimed the bees were in the larval form only about three and a half days."

"Didn't you tell him he was wrong?"

"I was about to contradict the statement, but concluded that I would not, as I had made only the one experiment. So I went to experimenting again, the weather being extremely hot at this time, and right in a big flow from the basswood, in July. The result during this very hot weather was a little less time in the egg form, a little over five and a half days in the larval form, and but little over eleven days in the pupa form, or only about 19¾ days from the egg to the perfect bee this time. And this is the shortest time that I ever knew bees to emerge from their cells in any of the experiments which I have ever conducted."

"Might it not be that in the South this might be brought down to 19 days?"

"It is barely possible; but I hardly think it probable. I have many times cut out all queen-cells but one on the seventh day from the issuing of the first swarm, and had said colonies build queen-cells over larvæ still unsealed; and when these queens were old enough to come from their cells, send out a swarm with the queen emerging from the cell I had left in cutting, I expecting that all larvæ would be too old to change into queens; which they would have been if the theory of larvæ being capped at four days old were correct."

"That is about as conclusive proof as your other experiments were. But is 21 days the longest period you ever knew in the embryo state?"

"No. The difference with cold weather is more noticeable than in hot weather. I have known very nearly 24 days to elapse with weak colonies and cold weather, while the bee was developing. But 21 days is the rule according to all of my general work among the bees during the past 35 years, and this rule can be depended upon in governing all our methods of dividing bees, forming nuclei, and in breeding bees in time for the honey harvest; in all of which it is necessary that we should have some knowledge of these matters. And right here let me say, before I forget it, that the time of the year when the development of the brood is the most retarded by cool weather is in the fall; and when most accelerated by hot weather is in June and July, when the bees are busily engaged in the honey harvest. The reason for this seems to be that the bees are very active during the fore part of the season, while they become more sluggish as the season draws toward its close."

"Are the embryo queens about the same time in developing?"

"No. They are just the same as regards the time for them in the egg form; and I believe all eggs are alike which are fertilized. Then they are from 5 to 5½ days in the larval form, and about 7½ days in the pupa form, or not far from 16 days in developing, warm weather accelerating and cold weather retarding to the amount of perhaps half a day each way."

"I think I will try these experiments myself next season, as I believe it is necessary for each bee-keeper to have a thorough knowledge about all things which pertain to his pets."

Editorial
By E.R. Root.

SOME of the more critical of our subscribers may notice that this journal is printed from a new face of type. Our heavy editions have been wearing our type so fast that we now find it necesary to change the type oftener than formerly.

SEVERAL of our correspondents in Southern California have written us of late that the season in that part of the State, with hardly an exception, is the worst on record. It will prove very severe on many bee-keepers of that State who have not prepared to tide over the season for another year when even then the flow may be indifferent or poor.

THE LAST RETURNS OF THE HONEY CROP FOR 1904.

REGARDING the amount of honey produced this year, the accumulated evidence that has come in from various sources seems to show quite clearly now that the aggregate of honey this season *is much less than last.* In a way, this may be a blessing in disguise, considering the large amount of comb and extracted honey carried over from last season. If we had had a crop as heavy as last year, the market might have suffered a total collapse from which it might not have entirely recovered. "There is no great loss without some small gain" is an old adage that may be possibly true in this case.

WHY BEE-KEEPERS SHOULD EDUCATE THEIR LOCAL MARKET.

I WISH to reiterate what I have said before until bee-keepers believe it as fully as I do, that the comb-honey canards that appeared in some of our reputable journals have done the comb-honey market an awful damage, and it will be a long while before we recover from it. Bee-keepers all over the country should sell, as far as possible, to their own local markets, and, what is more, seek means to educate the public regarding the purity of their product. In many cases it may be advisable to make a house-to-house canvass. Some of the city markets were overstocked last season, and even now have on hand quite an amount of honey—see market quotations. Rather than rush it to the nearest commission houses, hunt up some bee-keeper who is an adept at peddling honey. There are hundreds of them who are able to dispose of four or five times what they are able to produce.

BEE-KEEPERS SHOULD DRUM UP TRADE AMONG THE GROCERY CLASS.

MR. E. B. ROOD, in the *American Bee Journal* for Aug. 4, urges the great importance of bee-keepers developing their home markets. At first his grocer friends were suspicious; but when he convinced them that his honey was pure he sold them 1000 lbs. the first season, and in a year or so afterward sold as high as 10,000 lbs. He quotes the editor of GLEANINGS as suggesting that, if the grocery trade is once worked up, orders will come in regularly without effort. This, he says, is not in the line of his experience. Grocers buy most of their stuff through drummers; and he finds that the grocery trade has got to be drummed up by bee-keepers if they expect to sell their product. The suggestion attributed to me, if I remember correctly, had reference to *consumers*, not retailers.

DEATH OF ANOTHER PIONEER BEE-KEEPER.

MR. J. B. HAINS, of bee-feeder fame, of Bedford, O., a bee-keeper who has taken a prominent part in apicultural affairs in Ohio, died at his residence Aug. 24. He did quite a large business in putting up bottled honey for the markets of Cleveland. Much of it he produced, and the rest he bought, all from well-known bee-keepers, so the purity of his goods was always unquestioned.

Mr. Hains was a tinsmith by trade, and that is how he happened to make what was known as the Hains atmospheric feeder.

When he called at our office two months ago he said he had been ailing for some months, and the nature of his trouble was such that he did not think he would live long. As he bade me good by he said, "Ernest, I feel this is my last visit to your plant." The immediate cause of his death was apoplexy.

GETTING UP A CARLOAD OF BEE-KEEPERS TO ATTEND THE NATIONAL CONVENTION AT ST. LOUIS.

AT various times there has been an effort to get up a carload of bee-keepers to attend the National convention. At the meeting that was held in Los Angeles a year ago there was a whole carload that went from the East, and the trip was in every way very enjoyable, as kindred spirits like bee-keepers that travel together can talk bees to their fill. There is another effort on foot to get a car to go from the Northwest. The following announcement will explain itself:

> I am planning to get together a carload of bee-keepers to go from St. Paul to the National convention via Chicago, to leave St. Paul on the morning of Sept. 26. Fare for round trip will be $13.00 without sleeper; sleeper from Chicago to St. Louis is $2.00. Already twelve talk of going with car, and I think we shall have no trouble in getting our number, which is twenty.
>
> There will be very little fall honey unless weather clears up soon. It rains much, and we have cool nights. Crop so far is less than last year, and number of colonies is greatly reduced since last year.
>
> L. F. HANEGAN, Manager
> St. Croix Valley Honey Pro. Assn.
> Glenwood, Wis., Aug. 22, 1904.

Those interested should write to Mr. Hanegan.

OUTDOOR FEEDING FOR WINTER STORES, TO GET THE BEES TO REAR BROOD.

IN addition to what is written on page 811, in a footnote to a correspondent, I would say we have been continuing our experiments in outdoor feeding, and the results continue to be satisfactory in every way. Never, at this time of the year, have the bees of our home apiary been so quiet and peaceable, for the outdoor feeding has brought on a condition very much the same as we get in a light honey-flow. Brood-rearing has been going on—just what our weak colonies have been needing; cells have been built out, and the hives can be opened anywhere without a horde of pilferers hanging around trying to steal a sip of honey, for these marauders are otherwise busily occupied by the aforesaid outdoor feeding.

Combs are being filled and capped over; and our head apiarist, Mr. Phillips, reports that the outdoor method stimulates much more than the in-hive plan; and, what is of the greatest importance, it is not a tenth of the work. The feeders we use are nothing more nor less than our quart Mason jars—larger ones would be better—inverted on boards having shallow saw-cuts about ⅛ inch apart and the same in depth, and extending nearly the entire length of the board. Of course, the saw-cuts are made parallel with the grain.

We have been feeding, part of the time, weak granulated-sugar syrup in the proportion of one-half sugar and one-half water. At other times we have fed dark unsalable extracted honey, reducing the same down to about the same consistency as the sugar syrup. But the latter we not only consider better for the bees, but it is much less liable to excite them when first given.

By the old way of feeding up for winter, the bees were stimulated in a way that made them very disagreeable. They rushed out of the hives to see where the great supply of food came from, and nosed around the doors and windows of our neighbors in a way that was sometimes very annoying. While they do this to a certain extent now, there is not nearly as much of it as formerly. After the bees learn where this supply of food comes from, it is not necessary for them to hunt it up, but they go right to the spot, take a drink, and go straight back to the hive.

The only possible objection that can be urged against outdoor feeding is the feeding of neighbors' bees. If they are located within a quarter of a mile I would urge some sort of arrangement by which each neighbor will shoulder equally the expense of the work.

I was talking with one of our neighbors who has one hive of bees about three-fourths of a mile away. These bees are bringing in a little honey, but their line of flight is in the *opposite* direction to that of our bees, or, rather, where our outdoor feeder is located. The fact is, goldenrod is just coming out, and that neighbor's bees are located within three-fourths of a mile of the river, where it is most abundant. But for this natural source of supply his bees would in all probability help themselves at our feeders.

The big colonies will get a larger supply of the food that is given outdoors; but when they are filled they can be given to the weaker ones; and when the feeding is all done, the stores may be equalized throughout the entire yard, with very little trouble and expense.

ARTIFICIAL PARAFFINE HONEY-COMB IN THE LADIES' HOME JOURNAL.

Our readers will remember that in the June issue of that magazine appeared an article by Emma E. Walker, M. D., on the general subject of foods and their adulterants. Among the list was included artificial honey-comb filled with glucose, etc. We, as did others, immediately sent in our protest to the publishers, and in reply received a very courteous response, to the effect that the matter would receive their careful consideration.

In the meantime, Mr. W. A. Selser, of Philadelphia, on behalf of the National Bee-keepers' Association, was asked to call and see the Curtis Publishing Co., and, if possible, get an interview with the editor, Mr. Bok. We also wrote Mr. Selser, authorizing him as our representative (for he is the manager of our Philadelphia branch) to say when he called that we would pay $1000, reinforced by any kind of bond that could be drawn up, for evidence showing artificial honey-comb honey on the market, filled with glucose as described in their June issue.

It so happened that Mr. Selser was an old neighbor of Mr. Curtis, and was received by him very cordially. To make a long story short, there were several interviews, during which Mr. Selser finally convinced the publishers that the statement by Dr. Walker was incorrect. At last a statement was prepared and submitted to Mr. Selser, which he accepted on behalf of the National and of The A. I. Root Co. The same now appears in the *Ladies' Home Journal* for September, and we herewith present it just as written by Dr. Walker herself:

> ### ARTIFICIAL PARAFFINE HONEY-COMB.
>
> Since making the statement in this department in the June *Journal* concerning paraffine honey-comb, I have received a number of letters from those interested in the subject challenging my authorities.
>
> My authorities are these:
>
> In "Foods: Their Composition and Analysis," by A. Wynther Blyth, it says:
>
> "A curiosity of food is a commercial American artificial honey, which is entirely composed of glucose syrup, while the comb is also artificial, and made of paraffine."
>
> In "Practical Dietetics," by W. Gilman Thompson, M. D., Professor of Medicine in the Cornell University Medical College in New York City, visiting physician to the Presbyterian and Bellevue Hospitals, it says:
>
> "Artificial honey-combs are now being made from paraffine, stamped into cells to imitate the original, which enables the bees to devote more energy to the manufacture of honey and bestow less on the combs."
>
> In "Food Analysis," by Leffmann and Beam, it says:
>
> "A common method of adulteration consists in pouring glucose syrup over honey-comb from which the honey has been drained, and allowing the mixture to stand until it has acquired a honey flavor."
>
> In "The New International Encyclopædia" for 1893 it says:
>
> "It is stated that much of the so-called honey which is sold contains none of the product gathered by the bee, and is entirely artificial. Of sixty-six samples of honey examined by the Massachusetts State Board of Health fifteen were adulterated with cane-sugar or commercial glucose, or both. One sample contained as high as eighty-eight per cent of commercial glucose."
>
> Notwithstanding these apparently authoritative statements, wide inquiry among practical bee-keepers now convinces me that paraffine is not used for this purpose, and never has been except in an experimental way. Therefore, the statement made in the June issue was erroneous. What appears to be further evidence of this is the fact that a reward of $1000 for a sample of paraffin comb was offered some years ago, and I understand has never been claimed. I give the above facts so that my former statements may not do any injustice to the army of reputable bee-keepers in America.

While, perhaps, some may feel that Mr. Selser should have demanded a stronger retraction, without any reference to the so-called "authorities," yet I think he should be congratulated in securing what he did. In the mean time we will write to these authorities as soon as we can get the addresses of the publishers, making a vigorous protest.

It should be stated that the army of bee-keepers who, in response to the request of the bee-papers, wrote to the publishers of the *Ladies' Home Journal*, undoubtedly rendered Mr. Selser important aid; for that gentleman says the *Journal* was fairly besieged and deluged with protests. Mr. Benton, of the U. S. Department of Agriculture, Washington, D. C., filed with them a vigorous denial. Then, besides, there were letters from the editors of all the bee-papers.

Copy for our new department, "Bee-keeping among the Rockies," arrived too late for insertion in this issue. It will appear in our next.

FOUL BROOD AND BLACK BROOD IN NEW YORK.

THE Tenth Annual Report of the Department of Agriculture contains a report on bee diseases, by Veranus A. Moore, M. D., and G. Franklin White, B. S., of the New York State Veterinary College, Cornell University, Ithaca, N. Y. I have already referred to this report (page 121, Feb. 1), expressing surprise that all the samples of black brood that have come under the inspection of these bacteriologists are diagnosed as *foul brood.* Indeed, the half-tone reproductions from the microscopic slides show the identical rodlike bacillus of the genuine *Bacillus alvei.* But the specimens diagnosed as black brood by the inspectors, these scientists do not find to be the same as the specimens which are pronounced by those same inspectors "foul brood." Unlike foul brood with which we are familiar, the diseased matter of the black brood of New York is *not viscid,* according to the New York bacteriologists. All the genuine cases of foul brood I have seen were *always viscid or ropy.* The disease that wrought such destruction in New York, which we have commonly called "black brood," is not ropy, but, on the other hand, has a sort of fermented smell. The foul brood of Europe, and with which we are familiar, is gluey, and smells like a cabinet-maker's glue-pot. If the bacteriologists of New York are correct, then *Bacillus alvei* manifests itself in two forms; and this leads to the inquiry whether or not there is some *other* microbe, which, in conjunction with *Bacillus alvei,* changes the general character of the disease so that it gives rise to "black brood."

Dr. W. R. Howard, of Fort Worth, Tex., says he found an entirely new microbe, and not *Bacillus alvei.* The one he discovered he called *Bacillus milii,* from its general resemblance to millet seed; but the New York men do not find any thing of this kind, notwithstanding they have pursued their investigation the second season, and this last time with the special view of determining whether their first findings were correct.

The Europeans have spoken of the fact that there are two forms of foul brood—the mild and the virulent. As it has been generally regarded that the black brood, so called, was much worse, it may be that we have here an out-cropping of the more malignant kind. But the foul brood we had here in Medina eighteen years ago was pronounced by scientist Mr. Thos. Wm. Cowan, who examined the disease with his microscope, *to be the same as that in Europe,* and the symptoms of it in every way tallied with the descriptions of it in all the European works so far as I know. The fact that this black brood deports itself so differently in external symptoms to those shown by foul brood is somewhat of a puzzle. I think that, for a matter of convenience, we shall have to call one black brood as we have been doing, and the other foul brood, and in the mean time may discover whether or not there is another microbe that works with *Bacillus alvei* to produce the other disease.

F. H. DE BECHE, THE BEE-KEEPER AND CUBAN PATRIOT.

MR. FRANCISCO H. DE BECHE was born of French parentage in Havana, Cuba, where he passed the greater part of his childhood. At the age of nine years, having lost his mother, he was sent, in charge of his grandparents, to France, afterward entering the College of Bonn, near Antwerp, whence he went some years later to the famous college of Carlsburg, where he finished his education.

On leaving college Mr. de Beche accepted a responsible position in the well-known Parisian banking firm, "Le Comptoir Lyon Allemand," where he remained until his return to Havana for the purpose of accompanying his sister, who had just finished her education in Paris. Returning by way of New York he was much impressed with the activity and business opportunities in that city; and as soon as his mission to Havana was completed he returned to New York to perfect his knowlede of English, entering the employment of the Munson Steamship Line, where he remained until the political situation in Cuba attracted his attention and appealed to his natural chivalry and sense of justice. Arriving again in Havana, just a few months previous to the outbreak of the insurrection against Spain, his attention first became attracted to bee culture; and although actively engaged at the time in other pursuits he found time to build up, in a few months, an apiary of about 300 colonies a few miles west of Havana. In the meantime, however, the spark of liberty, which was lighted by a few hundred men in the mountains five hundred miles east of Havana, had swept the entire length of the island; and his apiary, just at the time it was on a footing to become profitable, was made a sacrifice to the Spanish torch.

Owing to his peculiar fitness, he soon became one of the most active and valuable representatives of the revolution in Havana. The history of his exploits, not only in carrying out intrigues, but the tact and diplomacy displayed by him in interviews with the commanders in the field, and his invaluable service, not the least among them being the successful management of an ammunition-factory in the heart of Havana, supplying the insurgents in the field with arms, ammunition, and medicines, would more than fill a volume.

During all this time, however, his interest in bee-keeping had not lagged; and several months before the close of hostilities, and in the face of innumerable difficulties and dangers, he established another apiary in the southeastern part of Havana Province, from which he secured a very large crop of honey the first season. At the close of the war he retired to his ranch, intending to engage in the business on an extensive scale; but at the insistance of his many friends in Havana he was persuaded to return to commercial life in the city, soon afterward selling the apiary, owing to inability to look after it properly.

Although fully occupied with business cares and responsibilities, Mr. de Beche still longed to make another venture in bee-keeping; and finding a willing partner in his long-time friend and companion, Mr. F. .L Craycraft, they selected a location in the suburbs of Havana, and in the fall of 1899 they brought from Florida over 200 nuclei, to which they devoted their spare moments mornings and evenings. From this beginning they put in two out-apiaries the following year, and up to the present time have sold over 1000 nuclei from the first yard, besides having three other apiaries located in the interior.

On the death of our lamented friend Mr. J. H. Martin, "Rambler," Mr. de Beche bought the apiary founded by him at Taco-Taco, where, from about 200 colonies originally left by Mr. Martin, he has had them increased to 800 colonies located in four yards.

Reference has already been made to the part taken by our subject in the struggle of Cuba for liberty. In the early part of this, an event occurred which came near assuming international importance. The papers were full of it at the time; but the *real inside history* involving the acts of the principal actor, Mr. F. H. de Beche, had not been given to the public, because there were good reasons why they should not then be known. But now that the war is over, and peace has been restored, these reasons no longer exist. Incidentally I learned of the part played by Mr. de Beche through a friend; and when the former visited us I quizzed him much; but on account of his natural modesty I did not get many of the details; but I secured his permission, after much coaxing, to get them for publication from Mr. Harry Howe. After some correspondence I secured a full account. It is with no little pleasure and pride that GLEANINGS is able to give this interesting piece of unwritten history for the first time. I am sure that our readers will be glad to know that it was a *bee-keeper* who conceived and carried into execution the plot that resulted in the release of a noble young woman from prison where she had been incarcerated for no other reason than that she was the daughter of a brave father who had done much for the cause of freedom in Cuba. The romance would have been complete if Mr. de Beche had married the young woman he rescued; but the fates decreed otherwise. The account is as follows:

A THRILLING ACCOUNT OF MR. DE BECHE'S PART IN THE RESCUE OF A YOUNG WOMAN FROM A SPANISH PRISON.

BY HARRY HOWE.

No story of Mr. de Beche would be complete without some mention of his adventures during the Cuban war. Being a French citizen, he thought he could best serve the cause of Cuban independence by staying in Havana, where he was able to be of great use to the Cuban cause. Among his many adventures the rescue of Senorita Evangeline Cossio from prison is the most important.

This talented and beautiful young lady was arrested and thrown into the *Recojidas* prison for fallen women, upon a trumped-up charge to gratify the spite of a high Spanish official. Many attempts to secure her liberty failed. United States Consul, General Lee, tried to get her released or even transferred to another prison, but the Spanish officials refused to act. A petition signed by thousands of women, among whom was the Queen of England, met the same fate. Her case was taken up by prominent newspapers of the United States, and, as a last resort, the New York *Journal* sent a reporter to Havana to rescue her at whatever cost.

Among the daring spirits whom he approached was Mr. F. H. de Beche, who told him that the plan of storming the prison was sure to fail. The Spanish spies were everywhere, and it would not be possible to get together enough men to storm the prison without their knowing it. After thinking the matter over he said that, if he could have entire control of the matter, he would attempt the rescue, but only on the condition that his name be not mentioned in the report of the affair.

He made a careful study of the situation, and finally disguised himself as a drunken cartman. He then rented a house directly across the street from the part of the prison where Sta. Cossio was confined. Then he bought some second-hand furniture and moved into his new quarters. At another time he secured a long ladder and some boards.

The day set for the rescue, an employe (or clerk) of Gen. Lee visited Sta. Cossio and gave her two boxes of candy, of which one was drugged. During the afternoon Sta. Cossio gave the woman in the room with her some of the good candy, and at bedtime she gave both of them some of the drugged candy. Early in the evening Mr. de Beche extinguished the street-light that was in front of his house. He had taken no one into the secret of the entire plot, but had given each a part. At the appointed hour he was on the roof of his house with the reporter for the *Journal*, and an Irish captain in the Cuban army, noted as a fighter. They watched until the police had passed on their round, and then shoved the ladder across the street to the window of the prison, and de Beche quickly ran across, and, with a sharp, well-greased hack-saw, cut off one of the bars to the window. When he started on the second one Sta. Cossio whispered that one was enough, and that she could slip through, so he started to take his tools back and to put a board on the ladder for Sta. Cossio to walk over. He had taken only a few steps when he felt the ladder sway and heard her coming after him. He turned in time to take her hand and keep her from falling. And so they crossed the ladder high above the street in the dark, de Beche walking backward, leading Sta. Cossio. The slightest misstep would have been fatal, and yet there was need to hurry, for at any moment the guard might see the open window, or the police in the street might see the ladder. But they arrived safely to the roof, where de Beche left the others to hide the ladder and other things, while he hurried to the street and around a corner, where he met a friend with a coach. Hastily he put Sta. Cossio into the coach and jumped into the seat, leaving his friend in the street. He drove around for a while to make sure he was not followed, and drew up in front of a fine house where the owner was waiting. Sta. Cossio ran into the house, and de Beche, after another drive around the streets, returned the coach to his friend. No one but the people where she stayed knew what became of Sta. Cossio. After two weeks or so, she was taken on a ship, disguised as a boy, smoking a big cigar. Although the ship was searched, she escaped safely to the United States, where her story helped very much to hasten American intervention in the Cuban war.

F. H. DE BECHE.

The morning after the rescue the whole city was in a ferment. More than twenty arrests were made, but no one who had taken part in it was even suspected.

On the roof of the house the police found the ladder, saw, boards, and a big revolver which the others had left in their hurry to get away.

Mr. de Beche is as modest as he is brave, and it was only after a long acquaintance and much urging that he consented to tell of his part in this dramatic escape. All the parties are prominent socially in Havana now.

Paso Real, Cuba.

GENERAL CORRESPONDENCE.

PERSONAL RECOLLECTIONS OF THE REV. L. L. LANGSTROTH.

Some Pleasing Sidelights Thrown on the "Father of American Bee-keeping."

BY WALDO F. BROWN.

My acquaintance with Mr. Langstroth began before the war, as he located in Oxford in the '50's. I was not interested in bee-keeping, and knew little or nothing about the man; but soon after his arrival he called on me at the farm. I found him to be one of the most interesting persons I ever met—a splendid talker, one who caught your attention and held your interest, not only by the wonderful number of facts he presented, but more by the enthusiasm he showed. It made but little difference what subject was broached, Mr. Langstroth seemed to have mastered it. But his specialty was his love of nature and the interest he took in every thing connected with country life. He was one of the most companionable men I ever met, and I was at once drawn to him, and an intimacy began which lasted until his death.

I recall that, during the first call he made, an older brother was present who was a student at Miami University; and knowing that Mr. Langstroth was a preacher he supposed he knew little or nothing about farming; and so as we walked over the farm he began enlightening Mr. Langstroth by displaying his own knowledge of farm life and work. Mr. L. was a good listener as well as a good talker, and he encouraged my brother until he had delivered quite a dissertation on farm life. During the talk we found that Mr. L. seemed to possess knowledge of every thing connected with the growth of plants, insects, etc., and that his knowledge was as much greater than ours as the sun is greater than a tallow candle. Later, after getting acquainted with Mr. L. my brother often referred to the time when he undertook to instruct him on points on which Mr. Langstroth knew ten times as much as he did.

I think I have never met another man whose common conversation was so instructive as Mr. Langstroth's, or who had such vast resources. Added to this was a happy and impressive way of imparting instruction, and his conversation never sounded "preachy;" but by adroit questions he would draw you into discussions and enable you to show your very best side.

Mr. Langstroth was a deeply religious man, and his piety was of the cheerful sort. I have rarely met a man who impressed me so much in the belief of the fatherhood of

God and the brotherhood of man. We attended the same church, and Mr. L. usually met me at the church-door at the close of the meeting for a brief conversation on weather conditions and crop notes; and whenever we had suffered from drouth, and a timely rain had fallen, he would extend his hand to me and begin with that beautiful quotation from the 65th Psalm, "Thou visitest the earth and waterest it;" and that psalm has been a favorite of mine ever since, and I always think of Mr. Langstroth when I read it; and it has been my practice for many years (when a timely rain has fallen) to read it at family worship.

Mr. Langstroth was naturally of a most happy disposition, but he had an infirmity which almost amounted to insanity. It was a disposition to melancholia; and often for six months together he would shut himself in his room, refuse to see callers, and seem utterly wretched. He told me that he spent his time playing "solitaire," and he believed that was all that kept him from insanity. He would suddenly come out from the influence of these spells as bright and happy as ever; and he said to me he believed he enjoyed more happiness than the average man; for when he was free from this infirmity he was supremely happy.

Mr. Langstroth was a most eloquent preacher, and a speaker who would hold his audience perfectly. He took an active part in the business affairs of the church; and I recall once when there had been a feeling of depression in our business meeting he made an address in which he used the following illustration to show that our church was no worse off than others, and that the churches of to-day were very much freer from jealousy and troubles which hinder their work than in the former days. His story was as follows:

An old farmer in Kentucky, who lived on a farm where they were obliged to grub the sassafras sprouts every spring from the cornfields (they called them "sassafig" in the vernacular), finally became so discouraged he determined to locate in a better country. He sent two of his sons to the then new State of Missouri, of which he had heard wonderful stories as to the fertility of the soil and healthfulness of the climate. Their first letters were optimistic, and the old man became so enthused by them that he determined to emigrate to Missouri. He could not sell his farm, but made some arrangement to have it cared for by a neighbor, loaded his effects on a wagon, and started on his long journey. According to the custom of the locality, the neighbors gathered to the number of a score or more to ride out on horseback with him as far as they could and get back that day; but as they passed the postoffice the postmaster handed him a letter. In those days of 25-cent postage the receipt of a letter was an event in the neighborhood, and he stood up in his wagon to read it aloud to his neighbors. It contained bad news. The frost had ruined the wheat crop; the corn was nearly a failure; his sons had shaken with ague until they had lost courage; and the letter closed with the following words: "And, father, sassafig grows here too." The old man turned to his neighbors and said, "I've been fitin' sassafig all my life in old Kaintuck, and I'm not goin' to a new country to begin the battle over again." And he turned his team around and drove back home.

Mr. Langstroth was intensely patriotic, and rendered valuable service with tongue and pen, as well as sending his only son to the front. In the pulpit, on the streets, and through the press his influence was known and felt for the encouragement of the soldiers and the help of the widows and orphans. I was never more impressed by a sermon and the recitation of a poem than one Sunday morning when Mr. Langstroth was greatly depressed, and came into the pulpit and began the service by reading from the psalm in which occurs the verse, "Thou executest righteousness and judgment for all that are oppressed." Without lifting his eyes from the Bible, or changing his tone, he broke forth in the "Battle-song of the Republic,"

Mine eyes have seen the glory
Of the coming of the Lord.

He recited the whole poem in such an impressive manner as to fix the incident indelibly in the minds of his hearers.

One Sunday morning he preached a sermon from the text, "Who can find a virtuous woman? for her price is above rubies?" He became so interested in his subject, and so enthusiastic, too, that he lost all track of time, and held his audience spellbound, until finally on looking at his watch he found he had been preaching an hour and a half, while those of us who had listened had not realized the lapse of time.

I knew Mr. Langstroth more as a minister and a friend than as a bee-keeper; but his name will godown to posterity as the inventor of the movable-frame hive which revolutionized bee-keeping, and made the success of later days a possibility. When I was a boy, if we wanted honey we killed the bees with brimstone and removed the honey. By Mr. Langstroth's plan the honey could be removed in the best condition, and the bees saved. He was an indefatigable worker along this line, and you could see him as soon as daylight broke in the long summer days out in his apiary working, and he kept it up until late at night. He spent whole days studying and investigating the habits of bees, and probably added more to the knowledge of bee-keeping, and to making it profitable, than any other man of his time. He had no fear of bees at all, and claimed he had been inoculated with bee-poison until he was immune. His talent and valuable work were appreciated by the leading bee-keepers of the United States, and his presence at their conventions was always welcome, and they voted him some substantial rewards for his investigations. His book, "Langstroth on the Honey-bee," was, at the time of its publication, far in advance of

L. L. LANGSTROTH AT THE AGE OF 65.

any thing that had ever been published on the subject of bee-keeping.

Mr. Langstroth lived to a good old age, dying Sunday, Oct. 6, 1895. He was still active in mind and body, and was conducting a communion service in a church in Dayton. He began the service, and suddenly stopped and said, "I beg pardon. I shall have to sit down." He sat down in his chair, and died immediately.

I look back over my acquaintance and intimacy with Mr. Langstroth as something to be grateful for, and feel that I, although not a bee-keeper, owe him a personal debt of gratitude for the inspiration I received and for what I learned from him.

[The above brings back so vividly my recollections of father Langstroth that it almost seems as if I could see and hear him talk while reading it over. I can heartily indorse every point in the description made by friend Brown. I have told you in the introduction to the A B C book with what joy and enthusiasm I read the pages of Langstroth on the Honey-bee, in 1865. I very soon pushed inquiries that resulted in finding Mr. L. still living; and then commenced a pleasant correspondence that was kept up more or less until his death. There was something in his makeup that constantly reminded one of some of the great benefactors of our age—Benjamin Franklin, for instance. His life was so unselfish that he might have lacked the necessaries of life were it not for the many able and willing friends that he was constantly making right and left. May the Lord be praised for those like father Langstroth, who not only make this world a better one while they live, but the memory of whose works will help to make the world better after they are dead and gone.—A. I. R.]

DIVISION OF LABOR AMONG BEES.

Young Bees Nearly Blind, and Why.

BY E. F. PHILLIPS, PH. D.

Baron von Berlepsch, in the *Bienenzeitung* for 1867,* records some careful experiments conducted by him to find at what age the worker bees normally leave the hive. The method used by him was to put an Italian queen in a colony of common black bees and then watch the young Italian workers as they appeared. This was done several times, and each time the time of the first flight of the young bees was recorded, and they were then followed until they became field bees. This was probably the most careful observation made up to that time, and a good deal has since been added.

Without going into all the details of the records of von Berlepsch and others, we can briefly outline the history of a common worker during the summer months. After leaving its cell in the brood-frame the young bee remains in the hive for at least seven days, generally nine. For the first day or two it is weak and does no work of any kind; but later it takes up the work of nursing the larvæ. If there is any wax to build, it is the younger bees that secrete it. At about the age of seven to nine days, depending on the weather to a great extent, the bees begin to take short flights in front of the hive-entrance on warm afternoons, not to collect honey or pollen, but to cleanse themselves; and in these first flights they rarely fly more than a few feet from the hive, and on their return they take up again their labors of nursing and wax-building.

When about sixteen to twenty days old they begin to take foraging trips, and normally never do any other work until they die. It need scarcely be added that, when only old bees are present in the hive, they do the nursing and cell-building; but under the usual conditions each worker goes through this life-cycle.

Two or three points are worthy of consideration in this connection. In swarming, the young bees as well as the old fly from the hive and leave with the swarm, so we may conclude that it is not weakness that keeps the bees in the hive or that limits their earliest flights to a few feet from the entrance. We know, too, that the sense of smell is very highly developed in bees, and in their early flights they might easily be guided by this sense entirely, so that, if quite blind, they could find their way back to the hive. We may, then, conclude that sight is not a highly important sense to a bee up to the time it begins to take foraging trips. Even in swarming, when the young bees do fly for some distance they are doubtless kept from wandering too far away by the scent which we know is present in a swarm.

In seeking for an explanation for the habits of any animal it is advisable, if possible, to compare these habits with those of some other animal nearly related, or of somewhat similar habits. Ants, which belong to the same order of insects, the *Hymenoptera*, also have a queen, males (or drones), and undeveloped females. The undeveloped females are either workers or soldiers for the protection of the colony. In some species there is more than one kind of worker, and the different types have different duties to perform. In such cases the workers do the same kind of work all their lives, and the soldiers are for the protection of the colony only, and do none of the work which belongs to the workers. Here, then, the division of labor is carried out to a much higher degree, and the individual is destined to certain duties by its very structure. In the bee the same thing is brought about by the bees taking up various duties at different ages. If the division of labor in ants is caused by structural differences, how are we to account for the same thing in bees where we do not have more than one type of worker?

We may explain this by saying that the

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* Translated in *American Bee Journal*, 1867, Vol. III., pp. 87—9.

bee knows by instinct that it must make cells and feed the larvæ while it is young; but instinct is blamed with too many things already, and it is better to find, if possible, some real cause rather than fool ourselves by attributing all the actions to a thing which we can not define. I do not mean to imply that it is impossible for instinct to bring this about, but I think it very improbable, and personally prefer some other explanation.

In my work on "Compound Eyes" I noticed that the entire eye is covered by* unbranched hairs; and in trying to find some use for these I was entirely at sea until I noticed that, although the young bees have their eyes well covered, the field bees have almost every hair removed. These hairs are so dense in young bees that it is difficult to conceive of the bee seeing any thing clearly; but there is no such obstruction for old bees. It then occurred to me that possibly this was in some way connected with the division of labor which we find.

It has been shown that a young bee *can* get along without sight, since none of its actions require acute vision, and the presence of these hairs indicates that it is probably nearly blind. Can we not, then, explain the confinement of the young bees to inside duties of the hive by the fact that it can not see to do any thing else? We do not call it instinct when a soldier ant protects the colony and does none of the work of the workers, since it is structurally unable to care for the larvæ; and it is equally unnecessary to attribute to instinct the fact that the young bee does not gather honey, since it can not see to fly further from the hive than the distance to which scent will guide it. There may be some other structural difference between young and old bees; but it seems to me that these small hairs must be of great importance to the colony in compelling bees to do the different kinds of work. Old bees can build comb and feed larvæ, but do so only when it is absolutely necessary; but a young bee can do nothing else.

Medina, O.

PRIORITY RIGHTS.

A Reply to Dr. C. C. Miller.

BY WM. W. WHITNEY.

Dr. Miller, in Stray Straws for Aug. 1, seems to take exception to the conclusions Mr. Ethics came to after doing some "hard thinking," and thinks his reasoning (or, rather, that of the farmer's) superficial. He seems to think that the farmer who owns the land has not even an equal right or claim to the nectar with some other person who has no property right in it, if, perchance, such person happens to keep a few bees.

In the case referred to by the doctor, no claim was made of *exclusive* right of the farmer, but a denial of the exclusive right of the bee-keeper. No objection of the farmer's to Mr. Ethics' keeping his bees in the neighborhood was made. If each farmer could fence his farm against the outside bees, I think no one would question his right to the nectar, which, it seems to me, would become as clearly his property as any thing produced on his farm. But the fact is, it's impossible to identify, trace, or control this natural product; and it is well that it is so. It is free, like the air we breathe, for every one to appropriate.

Dr. Miller seems to think the proposition a strange one, that the farmer who owns the land has the same moral right to keep bees for the production of honey that he has to keep cows for the production of butter and cheese. Query: Hasn't he? who has a better right? The matter of ownership by the farmer is not the question to be considered at all; but it is the *exclusive* right of the pioneer bee-keeper to monopolize a given territory.

But, for the sake of the argument, suppose we grant his prior right, and that a law be passed fixing all the pains and penalties for the crime of overstocking, and that we have an inspector of a given territory — the foul-brood inspector might be transformed into a sort of nectarometer for the purpose of regulating the matter of overstocking, and to protect the rights of the pioneer. How are we to determine the minimum quantity of surplus comb or extracted honey which shall indicate that any given territory has been overstocked? In some years the same locality furnishes much more nectar than in others; in fact, it could scarcely be overstocked; in others, no nectar at all, and bees require feeding.

Some have better success than others in the same locality. One year (a rather poor one) with a few colonies I was fortunate enough to secure about 1000 lbs. of surplus, while many of my neighbors with as many or more bees got little or none at all. Those who secured none might claim that the locality was overstocked, while I might deny it. With all the varied conditions of weather and management, how are we to regulate this matter, anyhow? Some years it's impossible to overstock — tons of nectar going to waste — then, again, none at all, and bees have to be fed; even one colony might be declared by the nectarometer as being kept in violation of law.

During a winter like the last, the bees of the pioneer may have all died, and those of the beginner last year (a good one for honey) may have gone through the winter all right and come out in splendid shape for business this last spring; but the prospects this season are not flattering, and the nectarometer rules that, under the law, the locality is fully stocked. But here is our pioneer with a lot of hives, frames of brood-combs, supers, etc., which he does not know what to do with. Now, here you are. The beginner of last year in, and the pioneer with every thing to do business with but bees, *out.* It's too bad. It's "superficial" thinking indeed that prompts any one to be "foolhardy" enough to advocate the passage of a law for the protection of a bee-keeper in the right to monopolize a given territory when he has no more moral right to it than he has to the exclusive use of the atmosphere.

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* The hairs of the rest of the body of the bee are branched, such hairs being characteristic of the entire family of bees, the *Apidæ*.

I notice that some specialist makes a kick because I suggest that every farmer should keep a few bees, and asserts that bee-keeping is a specialty. So is fruit-raising a specialty; but is that a bar to a farmer raising fruit? The most natural place in the world for fruit is on the farm, as it is for keeping bees. Floriculture is a specialty; but every farm should have a flower-garden; poultry-raising is a specialty; but the most natural place in the world for a few chickens is on the farm. Any business may be made a specialty, but does that fact offer even a plausible reason why a mixed business should not be carried on if one chooses to do so?

Why, Mr. Editor, such a theory carried to the extreme would drive a large part of the world's enterprising workers out of a large share of their business. Where would the A. I. Root Co. be in such an event? But it may be said that manufacturing bee-keepers' supplies, keeping bees, printing a bee-paper, etc., go together; but do they, any more than raising fruits, flowers, and nearly all kinds of grain, and bee-keeping?

Yes, sir; notwithstanding Dr. Miller's Straw kick in favor of bee-keepers' patent right to a monopoly of given territory, and the Specialist's special kick in the *American Bee Journal*, I still assert, without fear of successful controversion, that there is no such thing as a prior right of a bee-keeper to territory he does not own, and that he can not acquire such right by simply squatting and commencing bee-keeping. The claim that any person has such right is too ludicrous to merit serious consideration. Also that the farm is the natural place for keeping bees, and that every farmer should have some good work in his library on bee-keeping, and should take some bee-paper, and, if situated so that he can, should keep a few colonies of bees for recreation, study fertilization of flowers, and to supply the table with honey, providing that they are properly kept, as every thing on the farm should be, otherwise they should not be kept at all.

ARRANGEMENT OF HIVES IN AN APIARY.

Cutting Out the Hive-rabbet; Honey Failure in Jamaica; Strength of a Bee, etc.

BY JOHN BOWEY.

Mr. Root:—On page 648 you ask why those big stones are put one on each hive. I myself should like to know why. I have seen them many times in California, only, of course, in apiaries where quilts or cloths were in vogue. Is it not time quilts should be a relic of the past? I see no earthly use for them, only, as a contributor to Gleanings recently said, they are good for puffing the smoke down between the frames.

I have seen, hundreds of times, on lifting the quilt, the top of the brood-chamber present the appearance of a solid board plastered with dead bees and propolis rather than a series of frames. As I observed this state of things I said to myself, "Deliver me from bee-keeping after this sort."

You also interrogate: "I notice that the hives are in regular rows. Does not this confuse the bees more or less?" You say that, in your experience, robbing is worse; that young field bees go into the wrong hive and are often killed. My experience and yours along this line are at variance. My 300 colonies are arranged in regular rows, 8 feet between the rows and 2 feet between the hives, all rows facing east during the height of a logwood flow of honey. When the bees tumble in heaps in front of the hives, too weary to reach the alighting-board, if they were entering the wrong hives there was no indication; every bee at every hive seemed equally welcomed. Surely if killing had been the order I should have seen it. As to robbing, I have had nothing out of the common.

Again, I have visited apiaries where four-frame queen-rearing colonies were in rows not more than three or four inches apart, each hive the same color and pattern, and not a strain to distinguish one from the other. I said to the apiarist (who, during the year, rears thousands of queens), "Do you have trouble with the queens entering the wrong hive being so closely in touch with each other?"

"Not at all," said he. With him I am inclined to the opinion that both bees and queens scent their own hives rather than sight them.

Dr. Miller, page 636, refers to a scheme of cutting out the rabbet and mailing a cleat on the end of the hives. This would be exactly to my liking, not with the view of lengthening the top-bar, but because it would give a bee-space, thereby eliminating the accumulation of propolis that is such a dirty nuisance in hives as they are now made. I have a number of such supers in use, and what a pleasurable contrast the ends of the top-bars in these supers are—perfectly clean from propolis, while those in the Dovetailed are glued solid at the ends, and in many cases the gutter formed by the tin rabbet is also choked with the same sticky mess. In a hive of this kind the staple-end frame must necessarily be used.

"One who was there," pages 653 and 654, must evidently have enjoyed a delightful time at the truly Bible supper as he terms it. The milk and honey sounds Mosaic; but pray, Mr. Editor, where did the Israelites in days of yore get their Jersey butter and rolls from, and the other unmentioned edibles, all raised within a mile of the feast? To me it appears more like a supper prepared on the American plan. The good book tells us it is not good to eat much honey. I hope the big chunks of honey that disappeared left no ill affect on the brethren.

On page 657 J. Baptiste speaks of the honey crop in California, Cuba, and Cape Haiti being a failure. To this list you might add Jamaica, which, while not a total failure, old bee-keepers declare it to be the poorest ever known. Our honey varies much in color and flavor, with all the gradations from the fine white logwood to a deep dark.

There is the readiest sale for all the island can produce, but the prices are low. Logwood is 42 cents per gallon (14 lbs. to the gallon); the darker grades are 32 cents per gallon.

I made a few observations during the past season. On one occasion I found two virgin queens trotting over the cluster of bees outside a populous colony. I captured one and gave her to a queenless colony. The second escaped among the bees. A few days later a big swarm came out.

Another strong colony cast a small swarm; 15 minutes later it cast another that more than filled a ten-frame hive. Tearing open a well-developed queen-cell I found nothing but an egg.

Early one morning I noticed a chain of bees hanging in front of one of the hives. I got on my knees and counted 24 in all, 23 hanging on to the one leg of the topmost bee. Another morning I counted 29. How many more there were I could not tell, as they were bunched at the bottom, pendulum fashion. I mused over the strength of that bee's leg, and concluded it was a feat the like of which I had never seen nor heard of. I think it overshadows Samson carrying away the gates of Gaza. My weight since coming to Jamaica is 116 pounds. I imagined 29 times this weight hanging on to my one leg, 3364 pounds. Would the coroner charge the jury to prohibit my friends from viewing my remains? How did that bee do it?

The best fuel I find here for the smoker is ants' nests. It is similar, I presume, to that which the ingenious Japs gather *en route* for kindling their campfires. If left untouched in the smoker it will burn for hours. We have large red ants here that are a terror to bee-keepers. Colonies need to be strong to resist their onslaught. I have known 50 nuclei to be annihilated in less than a week. When once gaining entrance they know no surrender.

A. I. Root's little automatic greenhouse seems the thing. I wish I could add to his collection some of my maidenhair ferns and orchids. The woods here abound with these dainty creations. One of my orchids produced 9 flowering stems. On one stem I counted over 200 flowers. It was worthy of the camera. I hope, Bro. A. I. Root, there will be lots of flowers in the better world. If not, I shall want to visit Jamaica occasionally in quest of its tropical beauties

In the altitudes the climate is ideal, pleasantly cool at all seasons; but in the plains one less orthodox than myself would say it is as hot as hades.

Kingston, the capital, principal port, and center of commerce, is said to be the second hottest place on earth. I arrived here the end of last November. I spent my first week in Kingston. The first thing I had to do was to discard completely all my California clothing and don the very thinnest over and under wear, and even in this attire it was like living in a Turkish bath. Some of my fellow-passengers came to the city on one boat, and were impatient to return to Port Antonio on the next. The length of days, and the temperature, vary but little the whole year round. Our proximity to the equator explains why.

May Pen, Jamaica.

[I suppose that some of our friends still think the 20-lb. stones indispensable; but I wish some of them could be compelled to work the other way, with the bee-space and thick top-bars for a season or two—without a quilt or cloth—cover next to bees. Wouldn't they change their minds? I think they would. But I very often see people who continue to use an old way, and one that involves more labor than a modern way that saves both time and money. When we think we are the least prejudiced we are the most so sometimes; and unfortunate is the man who has tried only one way and is sure that *that* is the only way.

We have tried hives in regular rows, all facing one way; and we have tried them in other ways in scientific groups, by which no contiguous entrances have the same appearance; and our experience season after season shows to us conclusively that, all things considered, it is better to help the bees in recognizing their home, especially when they are engaged in queen-rearing. I admit that in Jamaica, with your heavy honey-flows it would not make so much difference. But even in Cuba, where the conditions are much the same, the majority of the Cuban bee-keepers prefer to have their entrances so arranged that the bees are not only guided by scent but by sight. I will admit that scent is a very strong factor in determining their home; but it is probably not the only one.

About that Bible supper, when we speak in poetic language, we are supposed to have poetic license, you know.—ED.]

Heads of Grain
from different fields

CELLARS VS. OUTDOOR WINTERING.

Having lost the greater part of my bees the past winter I am going to try wintering in the cellar. We have one, somewhat damp, that contains a furnace for heating the house. Will partitioning off a part of the cellar with inch boards covered with some heavy paper, and having in this apartment a window from out of doors, regulate the heat so that the bees will winter all right.

How large a part should be partitioned off?

Pierpont, O. Edgar Williams.

[Your bees can be wintered in your cellar, but you must be sure the temperature of the furnace-room does not materially affect the temperature of the room in which the bees are confined. A board partition would hardly be tight enough. Temperature should be kept as near as possible about 45 degrees. Very much of a fluctuation above or below this would result in the death of a good many bees. Last winter was an exceptionally hard one, and I would advise you to go slow about wintering in the cellar; for in the majority of localities in Ohio, unless conditions of temperature can be absolutely controlled, you had better winter outdoors, providing, however, that you have good hives double-walled, and protected from the prevailing winds.

The space for 80 colonies should not be less than 8×8, and better 10×10. There should be a window which can be opened, and the wall that projects above ground should be earthed up or protected with straw, not so much to keep the cellar warm as to keep it cool. In Ohio the great difficulty is keeping the cellar cool enough. Our machine-shop cellar that gives such good results furnishes conditions that will not be found in the ordinary house cellar.—Ed.]

WHY SECTIONS SHOULD NOT BE CLEANED OR SCRAPED; BEES DYING DURING OR AFTER A HONEY-FLOW.

When we used to clean our sections so nicely, people used to say our honey was manufactured; but since selling it direct from the hive with wax on the supers, they seem satisfied it is made by the bees. If every one could sell his honey in that way to farmers by the superful, and to the grocers in home towns, the "manufactured-honey" story would soon die out.

This spring, when bees began to gather honey fast from white clover there would be many bees dead and dying around in the grass, sometimes in hollows in the ground. We feared for a time it would decimate our hives, but in a few days it passed away. We do not know the cause. We then feared some one was trying to poison them, though we mentioned it to no one. We knew they bothered our neighbors sometimes; but if such is the case we had better say but little about it, and try to kill the neighbors' trouble with kindness if possible.

Our bees have done fairly well this year, though not yet more than half as much honey as last year has been gathered. But we hope for a fall honey crop, which we did not get last year. Bees are in good condition for a fall crop, and frequent rains give promise of more honey-bearing weeds, such as smartweed and teasel.

Roseville, Ill. Mrs. L. C. Axtell.

[There may be something in your idea of putting out honey with stains or marks of the hive on it in your own locality; but in the large markets, at least, cleaned and carefully sorted sections bring a higher price as a rule. The public always prefers something really fancy. — We have noticed exactly the same thing you describe, of bees dying during the honey-flow. If any of our readers are able to account for it we should be glad to have them write us.—Ed.]

A RETURNING SWARM.

A RETURNING SWARM.

I am sending you a half-tone of a returning swarm. The queen was caught in the trap, and when the swarm came back from the plum-tree she was allowed to enter. All my bees are Italians, and very gentle. This colony gave me 133 choice sections, 3⅝ × 5. My average was over 90 for the apiary. I sell all my honey to the local trade, and can't get enough. F. H. Drake.

East Brookfield, Mass.

THE HONEY SEASON ON THE EAST COAST OF FLORIDA; OVERSTOCKING AND PRIORITY RIGHTS.

The honey crop on the east coast of Florida is short — in some places a failure. On the west coast the yield was good. From about 700 colonies Mr. Marchant extracted 258 barrels, of 32 gallons each; also got about 1500 lbs. of comb honey. The bees were located in three apiaries on the Apalachicola River—one, two miles *north*, the other two miles *south* of the home apiary. You will see the bees did not work a very extensive territory, but all were busy as long as the flow lasted, which was about 25 days. We consider this a very fair yield, and do not think the range was overstocked.

In regard to overstocking a range, we may say that some ranges are overstocked before any bees are put there, or otherwise some people will stock a range that is not capable of supporting bees at all, so such a range can easily be overstocked. Other places will seem some years to be incapable of being overstocked, when the next year the range will yield little or nothing. There is no definite way to tell what is *going to be;* but common sense should tell a person that it is policy to get as far away as possible from a range already occupied with bees; for if such range is not filled to its full capacity the people there will, no doubt, put all the bees there that can be kept with any profit one year with another. Then we may ask how far an apiarist's rights of priority extend. Is it as far as he pleases, or just as far as he can occupy it and do it justice? May be some of us demand too much. If my neighbor locates an apiary on a range adjoining my own, but beyond the flight of my bees, is it any of my business? or have I a moral right to claim every thing that joins me? This matter will never be settled to the entire satisfaction of every one; but let us not claim too much as ours when we can show but a poor title or perhaps none at all, only to say, "I was here first, and claim all within reach." If you have a nice apiary on only a fair range, and I come and establish another one just over the street from you, it shows a very poor business policy on my part, and little regard for what is right from a friendly point of view; but every one will have his views all the same.

Hollister, Fla. M. W. SHEPARD.

QUEENLESS AND BROODLESS; WHAT DOES IT MEAN?

What is meant by making a colony queenless and broodless? Do you remove all the brood at the time you do the queen, or simply wait four or five days until all the eggs have hatched into larvæ?

Gorda, Cal. W. N. HUBBLE.

[To make a colony queenless and broodless simply means that we take away queen and brood in all stages, including eggs. The purpose of this is to get the bees in a condition where they are crying for prepared cells, brood, eggs, or a queen. Then when they are finally given larvæ or eggs they will commence cell-building, and feed the cells lavishly with royal food.—ED.]

OUTSIDE FEEDING.

Several of my apiaries are located some miles from any other; and when I find that they are short of stores for brood-rearing I feed granulated-sugar syrup outside. I have fed a barrel of sugar at a time, and had no difficulty with robbing. I leave the entrances of the strong colonies wide open, and contract those of the weak ones in proportion to their strength. It seems to me quite as satisfactory as inside feeding, with much less trouble. E. B. ROOD.

Braidentown, Fla.

[See answer to C. E. Woodward in our last issue, p. 811, and editorials in this one. —ED.]

MORTALITY OF BEES IN UTAH.

I saw in your July 15th issue an article on mortality of bees in Utah. I saw the same disease, and it stood altogether in the honey that was in the hive. The remedy we used for it was to extract all the honey from the hive and feed the bees. The disease described in GLEANINGS just matches the one I saw. The bees, old and young, would crawl out and begin to hop, and some would go as far as fifty or sixty feet, hopping till they were exhausted. After the colonies were thus treated they came out all right. H. A. ROSS.

Evansville, Ind., July 21.

[This is respectfully referred to the sufferers or losers of bees in Utah.—ED.]

ARE COMBS AFFECTED WITH PICKLED BROOD FIT TO USE AGAIN?

Pickled brood got into my yard pretty badly this spring, and I have saved the combs and honey. Would the combs and honey be all right to use again next year? I have been reading on page 763 what A. J. Halter has to say about it. But with me, it began with two colonies with the first brood they had in the spring, and kept spreading all through the yard. E. A. HARRIS.

North Petersburg, N. Y.

[I would not advise the use of combs which have contained pickled brood. It is cheaper by far to melt them up and use foundation in them again. The combs of honey certainly would not be fit to give again to the bees. While pickled brood is not a serious disease, it is very annoying, cropping out every now and then, and then disappearing.—ED.]

Under ordinary conditions will bees store enough honey in a one-story eight-frame Dovetailed hive to last them through the winter? ALBERT HURT.

Memphis, Tenn., July 29.

[Probably not; but a good deal will depend on conditions. If there is no fall honey-flow it will probably be necessary to give a light feed in the fall.—ED.]

OUR HOMES,

BY A. I. ROOT.

The meek shall inherit the earth, and shall delight themselves in the abundance of peace.—PSALM 37:11.

I confess, dear friends, that, with the war between Japan and Russia, and the various strikes now going on in different parts of the United States, it does not seem, especially to the casual observer, that the meek are making very much headway in inheriting the earth; but if we take a calm view of things, especially matters that are going on under the surface as well as above, I think we shall see that the Bible promise is being fulfilled. God's people are surely making progress; intemperance is being put down, and wicked men, with millions of money back of them, are beginning to understand that there *is* "a God in Israel," and that they must obey the laws of our land.

In a recent trip of 400 miles through Ohio I passed through Ashland, Mansfield, Marion, Delaware, Marysville, Springfield, Dayton, and Xenia, besides many other good-sized towns and cities. It was a pleasant surprise to find almost every one of these cities torn up more or less in the work of making better thoroughfares. I passed through so many different towns in a brief period of time that I can hardly remember now which was which; but in quite a few I found not only beautiful streets paved with vitrified bricks, but in three or four there were asphalt pavements where the automobile would run without a sound, and turn almost as easily as if it were walking on air. And, by the way, we are already, at least to some extent, ignoring not only mud roads, but roads of every kind, and climbing *through the air*, and I do not mean by means of the gas-balloon either. But I am not at liberty just now to tell all I know in regard to this matter.

Marysville, O., I found so torn up with their preparation for nice pavements that one could hardly get to a hotel, store, or restaurant without going on foot; and sometimes it was difficult to get there at all. There seems to be a general forward movement, and perhaps a little good-natured rivalry, in fixing up the towns and cities of Ohio, and in my opinion there is great need of it. The roads, in many cities, even on the principal streets, are full of mud-holes or round cobblestones, and I presume these things have been tolerated simply because the towns had planned to do a good job when they got at it, and they did not want to waste money on temporary improvements meanwhile. Our town of Medina is just now in that fix. The street most used has been in a horrible condition for a year or two; but as I write the surveyors are at work, great ditches are being dug across it to convey the city water, and to look after proper sewage, before laying the vitrified bricks that are being piled up in great heaps on each side of the roadway. God is already blessing our people in their efforts not only to fix up each individual home, but to take care of the streets and highways that are to be used by each and all. May he grant this work may be done in peace and harmony all over our land; and at the same time may he give us men of nerve and courage to rebuke and punish the "grafters" who would rob the people of the public funds.

The Philadelphia *Farm Journal* has gone further than any other agricultural paper in declaring that automobiles should be barred from the public roads. If I am making a mistake in this I shall be glad to be corrected; but in several recent issues they have at least intimated that the farmers who built the good roads are being driven off and being obliged to take byways on account of the autos that are, as a matter of course, selecting the best and most direct highways. In fact, there has been more or less of a disposition to quarrel over the right of way ever since automobiles have become so prominent. The *Farm Journal* thinks that what the owners of autos have done in the way of paying for our good roads is only a drop in the bucket. Now, this may have been true in the past, but it is not going to be so in the future. As a rule, the owners of autos have means, and the greater part of them certainly are not only able but willing to pay, and pay liberally, for whatever they want. Men of wealth are going to furnish the money for beautiful roadways in a way they have never done before; and the question as to whom the roads belong to, and who shall use them, is going to be settled in the line of our text: "And the meek shall inherit the earth, and shall delight themselves," not only in peace, but in the "abundance of peace." Very likely some of you will suggest that the men who run the autos are *not* exactly the personification of meekness; and I shall have to admit that some of them are not. There are others, however, who are coming rapidly to the front who not only practice but exhort meekness. There is a great organization, the American Motor League, that not only makes its business to see that our people have fair play, but also declares most vehemently that every man who owns an auto shall respect the law. Let me give an illustration:

In running our bicycles a year or two ago we were greatly annoyed by chickens and other poultry belonging to the farm homes. They had been educated, it seems, to calculate safely on their ability to get out of the way of a horse and buggy; but the wheel was so much swifter, and came on to them so silently, they got "rattled," and, instead of getting out of the way, or staying out of the way, some evil genius seemed to possess them to run right under the machine. Well, now, this is very much worse with autos.

A hen with a dozen chickens will be looking after the welfare of her flock by the roadside. When the auto comes on her unexpectedly, she (and the chickens) at the last moment seem to think that the other side of the road will be much the safer, and so they run right into danger; and unless the driver slows up and turns his machine so as to avoid them he will be pretty sure to kill chickens more or less. Now, even as good a boy as Huber suggested that a chicken, especially a small one, is not worth slowing up for, especially if you are in a hurry. I reproved him, and I wish here to reprove every user of the highway who takes that ground. Some of the auto magazines have suggested that poultry is out of place on the highway. Even if this should be declared so by law, I would not consider for a moment asking the farmer to shut up his chickens or to keep them off from the roadway. You see, friends, it hits the same question as to whether bees have the right of way to go where they choose. A small chicken may represent only a nickel in value; and even if the driver would willingly hand over the nickel rather than stop, this does not help the matter. Paul says, "If meat maketh my brother to offend, I will eat no meat while the world standeth;" and killing chickens, and leaving them lie scattered along the highway, certainly does make, just now, a farmer "brother to offend."* I am sorry to hear that, on the road that was chosen for automobiles to run from New York to St. Louis, not only dead chickens but geese, turkeys, and guinea fowls were mangled and scattered along the way. I have never yet killed a chicken, although Huber killed one or two when I was sitting by his side. That was when we first started out, more than a year ago. I have always slowed up rather than endanger the life of a chicken, out of respect to my farmer friends; and if I should be so unlucky as to kill one I will certainly stop my machine and pay for the fowl. We are told that, on that ride to St. Louis, an irate farmer drew a gun and threatened the life of one of the auto drivers unless the man stopped and paid him a dollar for a chicken. He said, "Of course, *you* did not kill my chicken; but one of your crowd did, and you can get your money back from the crowd." He got his dollar, and the crowd did make good the man who handed it over to avoid being shot. But in this case the farmer was the one who was breaking the laws; and I think that, in order to avoid establishing a bad precedent, this farmer should have been arrested and punished. Getting your rights by using a shot-gun illegally is not according to the spirit of our text.

I have already discussed about teams. We have good laws in regard to this matter, and horses are fast becoming educated as well as the chickens. We have good laws regulating the matter; and almost everybody understands now that an auto driver is legally obliged to slow up or stop whenever any person who is driving a horse gives him a wave of the hand. It may be annoying to be obliged to slow up and stop the engine when the horse pays no attention whatever to the machine; but it is the law, and we must obey it.

I wish I had space to tell you of the pleasant words and smiles I received during that long trip in arranging this matter of frightening horses. I made it a point to say, when I hindered anybody because his horse acted badly, "I am very sorry to have annoyed or hindered you. I try to avoid making anybody trouble." In reply to such words, over and over again bright intelligent men and women have said to me, "I am exceedingly obliged to you, sir, and I fear I have hindered *you* needlessly. My horse has acted badly on previous occasions, but you have a fashion of going much slower than such vehicles usually do, and your machine doesn't seem to make nearly as much noise as the greater part of them." Of course, the replies are not always in the above language, but something like it. Again and again people would say, when I began to slow up, "Go right along, stranger; I can handle my horse, I am sure, and I want him to get accustomed to these things."

Unfortunately I came into the town of Xenia just as long strings of vehicles were returning with their occupants from the biggest day of the county fair. It was no use for me to take another road leading into town, for they were all in the same fix. I did think of stopping by the wayside; but that woulld have kept me till after dark, which would have made matters still worse; so I passed vehicle after vehicle. Let me remark here that there seem to be special towns where the horses act very much worse than in others. Where there are a dozen autos in the town, the horses have mostly become accustomed to them, and there is little or no trouble. Xenia and one other town are the worst I have seen; but in both places the people who drive the horses were more at fault than the horses themselves. They frightened their horses by making them think they were going to be killed sure. On one occasion I saw some women away off on top of a hill, piling out of the buggy in frantic haste. They were so frightened, and were trembling so, they could hardly stand on their feet. As soon as I was near enough I stopped my machine, and not only soothed the women but I would have soothed the horse also were it not that he did not see any thing to make a fuss about. The grandmother, who held the baby, said, "But you see, stranger, we have a *baby* here, and we can not take any chances on babies." I told her she was exactly right, and I soon made friends with the baby and the baby's mother. I tried to have them get back into their buggy, but they said their horse was just frantic at the sight of an auto, and they insisted on walking in the dust clear up to my machine and past it. The horse paid scarcely any attention to it whatever, although I led him right up to it. Now, these people were profuse in their expressions of gratitude. The grandmother said something like this: "If all men were as kind and careful as *you* have been, stranger, what a different world this would be!"

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* Farmers, or perhaps I should say farmers' wives, work hard to rear their chickens, and it is no small loss if they be run over, especially if they are run over with indifference, as if they did not amount to much anyhow. I stopped one night at a country home. The father and mother, with three or four children, had been for thirty years on a rented farm. Various mishaps had prevented them from purchasing the property outright. Just a few days before my arrival, the good wife said to the husband in the morning, "Why, husband, you let the chickens out this morning, didn't you?"

"No, I have not touched the chicken-coop at all."

"Why, dear me! I fear somebody must have stolen them."

An examination showed that 73 chickens, worth 50 cents apiece for broilers, had been stolen during the night. These chickens were the result of days and weeks of hard work. The coop was securely fastened every night and opened every morning; and yet there are wretches in human form who would thus rob a poor farme'rs wife on rented land of her hard earnings. Only about a year ago their best horse was stolen out of the lot in like manner. Think of this when you feel like calling it a "small thing" because a chicken or two may be killed by an automobile.

Of course, it took some time to get by all of these vehicles in this way; but it gave me a rare opportunity of showing forth the spirit of Christ Jesus. And when we come right down to it, what is the most important business we have in life? Why did the dear Savior give me a human life to live? and, finally, for what reason did he send me out on this trip, unless it was to show forth his spirit wherever I go and to all I may meet? Permit me to say right here I do not know that I ever thanked God for his mercies, and for giving me this life to live, any more than I did during that outing of two weeks; and I think my happiness was due to the pains I took to make friends, not only with men, women, and children, but with the horses, geese, and chickens. Whenever I stopped to oil the machine, make adjustments, or get gasoline, a crowd soon gathered. I was sometimes tempted to be vexed with the inquiring curiosity of small boys. There are always some in the crowd that look the machine all over intently, but never touch any thing; but there are others whose itching fingers can hardly be kept off the rubber tires, cranks, valves, etc. In vain I told them they must not touch a thing about the machine or they would make mischief; but when I was watching the oiling, something would be handled. What makes the difference in children? Why, my dear father and mother, it is the *home bringing-up*. If your child has not already been taught to avoid meddling with things when he goes around machinery belonging to somebody else, go right at it this minute. It will not only enhance his money value anywhere in the world, but it may save his life. In one town there was a boy who was so bent on getting hold of every thing it was next to impossible to stop him. I cautioned him repeatedly; but when my head was down under the machine I heard a sharp click, then an explosion in the cylinder, and a rap as if you had struck a boy with a ruler. I asked the boy what happened, and he whimpered out, "Why, that crank all at once flew around and struck me on the head." He said he did not touch any thing; but the other boys said he turned the electric switch. The engine had been stopped with the compression on; and it happened that, when he moved the switch, it ignited the charge. I hope his punishment will cure him, at least to some extent, of his peculiar propensity.

I usually made friends with the boys and girls while on my trip, telling them I would give them a ride as far as they chose to go, providing they were willing to walk back; and the memory of their childish thanks is still fresh in my mind.

As it is now vacation time, I did not wonder there were large numbers of boys scattered through the Ohio towns, with nothing particular to do. But it did give me pain to see able men, and especially young men, loafing and smoking in front of the country stores. Not only were they smoking cigars and pipes, but in almost every town, if I made any sort of stop, somebody would roll up a cigarette and light it, and almost make me sick with its fumes, even when we were in the open air. I wonder if the use of tobacco promotes loafing. My trip was made during harvest time, and through a part of Ohio where there are great factories employing thousands of men; and yet able-bodied men were loafing, and seemed to be trying to kill time at the country stores all through Ohio. The rural free delivery of the mail cuts off the excuse to go to the postoffice, and ought to discourage loafing. Some of the smokers of cigarettes were well dressed — apparently the sons of well-to-do parents; and with the cigarettes were almost always oaths.

During warm days I found that it was necessary to give our engine fresh water about once in ten or fifteen miles. I knew our water-pump was badly worn. While at Xenia the pump failed entirely; but I was fortunate in finding a factory where they were building automobiles. The proprietor said he was familiar with the Olds machine, so we proceeded to pull it to pieces, and then found a part of the pump had literally worn out. A new piece had to be made. Now, I am a little nervous about setting strange men at work on my machine. I was afraid, in taking it all to pieces, they might do harm as well as good. I was agreeably surprised, however, to find them really bright and capable mechanics. The young man who was set at work to make the new part of the pump especially impressed me. He was exceedingly careful to have every thing exactly right. When mechanics attempt to rush work of this kind, and quarrel with their tools and machines, it always tries my patience. But this man was a model workman in his line of business. The proprietor, however, although equally skillful, was inclined to be impatient. After we had been at work an hour or two he began to swear. Said I, "My friend, may I ask your name again?"

He replied, "My name is Baldner."

"Well, Mr. Baldner, if you will excuse

the liberty I take, I am sorry to find you are a swearing man. Don't you believe you could get along just as well, and may be better, if you kept back those bad words?"

"Well, now, what is *your* name?"

"I am A. I. Root, of Medina, Ohio. I profess to be a follower of the Lord Jesus Christ, and it always pains me to hear such words as you have just been using."

He made some reply with a remark rather defending himself, and was a little inclined to resent my rebuke, so I dropped the subject. After a while, when the difficulty with the machine was gotten over, and he was pleasant and good-natured, I tackled him again.

"Friend Baldner, if you were hiring a new man, wouldn't you give more for one who is patient with his work, and never swears? Suppose the skill of two men to be exactly equal, wouldn't the man be worth more money, in your opinion, who, no matter how much he is vexed and tried, keeps a cool head and holds his temper without ever uttering a bad word?"

He looked at me a minute and then began to laugh.

"Why, Mr. Root, the man who never swears and never becomes impatient — that is, who never lets it come out — is worth the most money, of course. There is no question about it. But if you have worked much with automobiles, you know how things sometimes act, especially when you are in a hurry, as I am now."

"What does your wife think about it? I believe you are a married man."

"Oh! she is with *you*, and you are *both right*."

When the work was completed I could not only go 25 miles without filling the water-tank, but even 30 or more. The auto instruction-book says, "Give water about every 25 miles." Then I went on my way rejoicing. But on my way home the machine began to miss explosions. I went over all the connections, cleaned the carburetter, and did every thing I could think of. Sometimes my efforts resulted in bettering the matter for a time; but it kept gradually getting worse until I spent a good deal of time under shady trees along the way for almost two days, trying to find the defect. I had prided myself on being able to hunt up the cause of any failure in a very little while. I had had no trouble I could not locate very soon, for almost a year past. The machine would make four or five explosions all right, and then it would miss almost as many. Sometimes it would run up a hill almost without a miss; then it would miss three or four; and just about as it was ready to stop and go backward it would commence again. It was pretty hard on the engine to endure those shocks; but as I did not succeed in finding the trouble I thought I could get home, even if the auto was crippled some. Finally one afternoon about three o'clock, when I was just on the edge of a little town called Raymond, Union Co., my auto all at once stopped going forward, although the engine kept right on. It would not move ahead with either high or low speed. I found out, however, it would go backward all right, so I created no little merriment among the villagers by going into their town backward. As I had not learned to steer in that way, my course was rather crooked. I ran up to a blacksmith shop and inquired if there was an automobile owned in that vicinity. No such thing was within miles.

"Does anybody know of a mechanic who would be likely to be capable of pulling my machine to pieces?"

Of course, I could pull it to pieces myself; but to take the engine apart would be rather heavy work, and it would be a pretty hard task on the nerves of an old man like myself. I wanted a bright young man for a helper. I meditated sending for Huber, but he was about a hundred miles away. Unconsciously my little prayer welled up in my heart, "Lord, help! Give me wisdom and understanding to decide what is best to do under the circumstances." I am glad that I added, "Not only what is best for me to do, but what will be best for these my friends and neighbors who are all about me. Help me to be ready to carry any message that I can carry to these people who are all strangers."

Of course, the above was a mental prayer.

Almost as soon as it was finished, a one-armed man of the group who had gathered around the machine suggested, "Why could not Ed Lowe help him out?"

And then a small boy piped in, "Why, yes; Ed Lowe has built two or three automobiles already. He will be all right."

In a few minutes the one-armed man volunteered to pilot me to Mr. Lowe. He owned a shop for making gas-engines, in Columbus, O., but had just finished his job on the gas-engine at the grist-mill, and was ready to take the next train. When I told him of my predicament he said he thought he could help me out, as he had overhauled several of the Olds machines. We both got on our overalls, and began pulling the machine to pieces. I happened to remark to him that I would have undertaken the job alone, but I feared I should be considerably worried. Then he surprised me by something like the following:

"Mr. Root, if you will take all your cares and burdens to the Lord Jesus Christ you need not be burdened or worried by *any* thing."

This surprised me, because it is very unusual for me to find a man who *anticipates* me in recommending the gospel of Jesus Christ.

Let us now consider for a moment the many things included in that little prayer of mine for help — the many reasons I had for *thanking* God instead of feeling cross because of my breakdown. I found a man who was, by chance, right in the town where I stopped. He was not only an expert mechanic, but a professing Christian. But this is not all. Before we got the machine apart, a big thunder-storm came up and we had to hustle to get into the shop near by. Had the accident occurred when I was in the country, far from any town, just before the approach of the storm, I might have been in a very bad predicament. As it was, we made the repairs while I was waiting for the storm to pass by.

A gentleman at the hotel gave me a little sketch of my new-found friend. He was brought up on a farm close by the little village of Raymond. He always showed such a love for machinery that, as soon as he was old enough, he made machinery his business. He and his brothers first built two or three automobiles, but finally settled down on the building of gasoline-engines — the business they now follow in Columbus. He informed me that at the present time he is called for all over the country to do adjusting and putting in order gas-engines. If I am correctly informed, the trouble with the one he had just visited was about like this:

It runs a gristmill, and had been giving great satisfaction for nearly three years, when it suddenly refused to go. Mr. Lowe looked it over, and found every thing in proper order. Then he began tracing up the source of gasoline, and this is what he found: A few weeks ago the iron pipe that carries the gasoline to the engine rusted through or broke off, or something of that sort. The owner mended the break with a piece of rubber tubing; and as that seemed to answer every purpose he rather forgot about it, and let it remain. When Mr. Lowe saw the rubber tubing he took it out and made a connection with an ordinary iron pipe, throwing away the gasoline in the engine, or straining it. As gasoline dissolves rubber it had, after a time, rendered the gasoline unfit. Lots of expensive breakdowns are the result of some such carelessness as that. Perhaps I might mention that gasoline-engines are rapidly taking the place of steam power, because it may almost be said they require no engineer. Mr. Baldner, of Xenia, before mentioned, told me their gasoline-engine had run their own machine-shop for a year and eleven months with an outlay for repairs of only 25 cents. His explanation of this was, "Mr. Root, nobody ever touches that engine but me." Well, Mr. Baldner does not touch it very much, for he worked on my auto from morning till noon without ever taking a look at the engine; or if he did I did not see him do it.

The trouble with my machine at Raymond was that five steel pins in the transmission gear had been sheared off, or broken by the hard knocks I had given it. I thought we could get some steel for pins or rivets at the hardware stores that would answer; but Mr. Lowe declared that nothing was safe for such a critical place but the very best Stubbs steel rod; so he telephoned for it at their shop in Columbus. After the rod came we found it was a trifle too large, and we proceeded to grind it down on an emery wheel. I turned the crank while he did the grinding; but when my wind gave out, I looked about for some of the boys or loafers who had been hanging around; but, for a wonder, when I wanted them they were all missing. At this juncture a ruddy-faced red-headed farmer boy came into the shop perspiring freely. He wore on his head a broad-brimmed straw hat with many a rent. He happened to overhear my inquiry for some cheap hand. Finally he came up with a good-natured smile on his boyish face and said, "Brother, I will turn that crank for you. I think perhaps *my* wind will hold out."

I thought by his manner he had come in on an errand, and would have to get away again soon. But pretty soon Mr. Lowe explained that that red-headed youth was his brother, and suggested that they could get me on the road quicker if this younger brother turned in and helped. Then I found out he was one of the firm of Lowe Brothers, and that his name was Charley. I suggested to the boys that, after they got the pins put in and the machine set up, I was going to have some fun in seeing them cure the gas-engine of missing explosions. Charley is a little more talkative than his brother. He sailed his old straw hat away over in the corner, and went to work with a vim that was refreshing. I did not have any anxiety in regard to those two boys, the way they went to work on that machine. When I suggested they might fail as I had, Charley replied, "Oh! no, Mr. Root. If we fail it will be the first time in our lives. We will 'run down' the mischief and mend up the defect in a very short time."

Now, I want to stop right here and call your attention to the contrast between these two young farmer lads working on that hot day until the sweat fairly dropped from their ruddy faces, and the idlers that stood by. While thus at work a crowd of town fellows stood around doing nothing. Some of them were complaining, perhaps, that they had not a job; and I am not sure that anybody would have given them ten cents an hour; but the Lowe Brothers had all they could do at *fifty cents* an hour. They were called for by telephone before they finished my machine. I think their regular price is fifty cents an hour and traveling expenses, and they are full of business at that. If these friends of mine in Raymond should see this I hope they will excuse me for speaking plainly; for plain talk is the only thing that will do them good. These men not only had nothing to do, even though the storm had cleared away, and it was a most beautiful morning to do work of any kind, but they were almost to a man smoking pipes, cigars, or cigarettes, and each cigar seemed to have a different flavor. I felt so vexed by the nauseating smoke that I was tempted to use the term "villainous" flavor. Each one of the crowd who used tobacco did not mind it; but I felt pretty sure that the elder Lowe, at least, was annoyed by the nauseating fumes. He pulled his head out of the machine, and said:

"Jim, won't you be so kind as to bring us a jug of water?"

Jim looked a little astonished, especially when the owner of the establishment replied, "Why, I just brought a jugful;" then friend Lowe looked at me in a kind of comical way and said, "Well, Jim, I don't care very much whether you get the water or do something else, only so you get away off a little while." At this I suggested our two friends would get at the ignition troubles with much more comfort if all those who were smoking would go for water or *something else.* By the way, boys, did you ever think that the one who is carrying his burdens to the Lord Jesus Christ not only never swears, but, as a rule, he never uses tobacco in any form?

Now for the trouble that puzzled me for a good part of two days. One of the boys started the engine, and the other, the younger one, began listening so intently to every portion of it that I really thought his red hair would become tangled up in the machinery. At first they thought the trouble was with the induction-coil. I told them I examined that very thoroughly, and I did not think it possible. Then they tried other places. I confess I could not help being a little pleased to think *they* too were bothered for at least a little while. Finally the older one pushed a long screwdriver down into the center of the machine, and, presto! all at once the explosions commenced, sharp, clear, and perfect — no misses; it was just the regular pop, pop, pop.* I wish I could show the grimace on Charley's face as he raised his hand and looked at me with a serio-comic air. Some people pay out their dollars to go to the theater and see the prima donnas pose while the audience cheers and encores. Now, that is well enough, perhaps, if you choose; but give me the boy mechanic who has solved a problem, especially one in the line of electrical and chemical engineering, and you can have all the rest. Our text tells us the meek shall inherit the earth; and this nation of ours shall be saved and handed down to posterity by just such men as those two boys are going to make — the boys who were reared on the farm, and take to mechanical engineering because they *love* machinery — the boys who have the grit to study out and conquer this world's problems — the boys who were saved from tobacco, profanity, gambling, and all these other things by *their trust in the Lord Jesus Christ.* I am sorry it is my duty, to be absolutely truthful, to add that Charley, the younger son, is not yet a follower of the Lamb of God that taketh away the sin of the world. He commenced once to swear just a little when something went wrong; but when I expressed astonishment and pain, he promised not to do so any more. The machine was all ready to run. It was pushed out of the door, and I told the older one to run it around town so as be sure the adjustments were all right. He called Charley to bring him his hat, and then Charley clapped his own old straw hat on his brother's head just as the latter was pulling the starting-lever. This was done in boyish playfulness, for it would be quite a joke to see his brother sailing round town with all the inhabitants watching, for the machine was a new thing in that little town. At first the elder brother hardly noticed the hat; but when he did he stopped the machine abruptly and bade Charley bring him his own hat. And, by the way, the hands of both boys were too much covered with black grease to permit of touching a decent hat or any sort of clothing. Charley, with comic grace, took his brother's good hat between his two wrists, so as not to touch it with his fingers, and gently placed it on his head.

I paid each of the two boys fifty cents an hour for the time they spent in putting my machine in order; but I rejoiced at the *privilege* of doing it. It is right and proper to enjoy acknowledging the worth of those who have raised themselves up by their own industry and hard work to the level of skilled artisans or experts—experts who are wanted everywhere in this age of machinery.

Before closing I wish to mention how keenly I enjoyed my ride through the corn region of Southwestern Ohio. The roads were so fine I often ran well into the night; and as the auto reeled off mile after mile, with the cornfields on either side, lighted only by my lamps, so near the track, and with stalks so tall they almost seemed to meet overhead, it made me think of the Arabian Nights enchantments. In riding after dark, even on level ground, I can hardly resist the feeling we are going down hill; for *how else* could this new creation plunge ahead so unceasingly, without a horse to pull it?

Temperance.

OHIO CITIES OF 10,000 PEOPLE, AND NOT AN OPEN SALOON.

I have elsewhere mentioned Xenia, Ohio, a town of about 10,000 inhabitants, that voted dry over two years ago. The wets, however, have been boasting that the damage to business was so great, etc., that Xenia would go wet the next chance, which occurred only a few weeks ago. Their great argument was, the "speakeasies" did just about as much business, while the city got no "revenue," etc., and many business men were humbugged by such arguments—loss of revenue. Just before election, however,

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*The whole trouble was because the steel spring on the commutator, sometimes called the "brush," had become too weak, or perhaps worn, so it did not press with sufficient force on the cam as it comes around at every revolution of the shaft. This steel spring was easily removed with a screwdriver, then friend Lowe took my light hammer and gave the spring just one tap, screwed it back in its place, and the trouble that had puzzled me so many hours was over. I felt vexed at myself to think that, in all my researches, I had never thought of this spring. In fact, I remembered that Ernest had had one just such trouble before. Here is a great lesson for us. A single tap, with a very small hammer, when rightly directed, gave the machine life and abundance of power; but it wanted brains to "run down" the mischief, as Charley expressed it, and see just *where* this tap of the hammer was needed. And this whole world is constantly wanting brains and intellect to direct not only the *muscles* of human beings, but the thousands of horse power that our engines and power-houses are furnishing.

that grand temperance woman, Mrs. Lenora Lake, the one who has done such mighty work among her own people, the Roman Catholics, came to the city, and not only carried her own people but almost the whole town. A relative of mine told me the city would have gone wet without question had it not been for the vigorous efforts of this one temperance woman. He said he did not believe there was a temperance speaker in our land, among the men-folks, who could have carried the town as she did. The town went dry with a very fair majority.

There is another fallacy which the recent temperance crusade in Xenia has refuted. Many business men are afraid to take an active and prominent part in getting the saloons out because the wets would not patronize them. Now, the firm of Hutchinson & Gibney, dealers in drygoods, etc., have from first to last taken a very prominent part in ousting the saloons. They have just sent to the *American Issue* the following letter:

Mr. P. A. Baker:—We are obliged to you for your worthy labors on the wet and dry question. Our success will help others. We are known as a temperance house, or "dry," and our sales last year were $10,000 more than any of the previous years of our history.

Xenia, O., Aug. 2, 1904. HUTCHINSON & GIBNEY.

Now just one *other* item. I told you I came into the town during fair time. The day after the fair, one of the Xenia papers stated in an editorial that, for the first time in years, there had not been a single arrest made on the fairground for drunkenness, pocket-picking, nor any disorderly conduct; and yet the attendance at the recent fair was one of the largest on record. Cambridge, Ohio, with a population just about equal to that of Xenia, has also gone dry for the second time. A prominent man among the wets remarked recently, with a discouraged air, that if "things" kept on at the present rate there would not be a saloon left in Ohio at the end of twenty years. I feel like thanking him for his encouraging words—especially as they come from "across the line." But, dear Christian workers, can't we cut the time down to a half or a quarter of the twenty, God helping us?

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really is; if you only knew how easily it can be put on and how long it lasts; if you only knew what a good all-round roof it is, you would save money by using it for every building on the place. Weather proof, wear proof, contains no tar, slate color, any one can lay it. Let us prove to you what the genuine Paroid Roofing will do.

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**Untested Queen 75c.; Six for $3.90; Twelve for $6.00.
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Special prices quoted on large orders. Having queen-rearing apiaries in the North and South we can furnish any number of queens on short notice. Safe arrival guaranteed. Price list free.

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Carniolans.

We are the largest breeders of this race of bees in America, having bred them for 18 years. We find them the *gentlest* bees known. Very hardy and prolific, good workers on red clover; great comb-builders, and their sealed combs are of a *snowy whiteness.*

Italians.

Gentle, prolific, swarm very little, hustlers to work, and a red-clover strain.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

IT DOESN'T PAY

to keep those poor colonies when a young vigorous queen from the best honey-gathering stock given *now* may make them your *best colonies* next season. We believe we have as good bees as there are for *business.* We rear our queens carefully, rejecting poor cells or virgins; guarantee them good queens and purely mated, or replaced free on notice. Our testimonials will compare favorably with any. One queen, 75 cts.; six for $3.50; 12 for $6 50; select tested, $1.00; six for $5; tested, $1.00; select tested, $1.50; extra select tested, $2.00.

J. B. CASE, Port Orange, Florida.

Queens by Return Mail

We are now breeding from three distinct strains, viz., Imported or leather color, Root's long-tongued or red clover strain, and our old strain of white-banded yellow Italians, or albinos. :: :: ::

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Untested, each	$ .65;	half doz. $3.75;	doz. $ 7.00
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Send for our 32-page illustrated catalog. . . . .

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Italian queens secured by a cross, and years of careful selection. From red-clover queens and Superior stock obtained from W. Z. Hutchinson I can furnish large vigorous untested queens 75 cts.; after June 15th, 60 cts.; tested queens, $1.00; after June 15th, 75 cents.

Write for discount on large orders.

**CHAS. KOEPPEN,
Fredericksburg, - Virginia.**

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Black brood, pickled brood, and bee paralysis cured. Cat. of prices of Adel queens and a small booklet on queen-rearing sent free.

HENRY ALLEY, WENHAM, MASS.

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65 cts. each; two for $1.00, for 60 days only. Circular free. G. ROUTZAHN, Biglerville, Pa.

MOORE'S STRAIN OF ITALIANS

AS RED-CLOVER WORKERS.

L. C. Medkiff, Salem, N. J., says: "I bought an untested queen of you last year and her bees have filled three comb-honey supers, and did not swarm, while thirteen out of the fifteen other colonies did not get more than half that amount

I have queens from six different breeders, and I class yours 100 per cent above them all. Your bees worked very strong on the first crop of red clover. I know they were yours, because I floured them with a dredge-box and watched the hive. They also worked strong on the second crop of red-clover and lima-bean blossoms."

Untested queens, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5.00, dozen, $9.00. Safe arrival and satisfaction guaranteed.

Send for descriptive circular showing why my queen-trade has grown so fast. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Key.

The Best Stock!

Twenty years' experience in rearing Italian queen bees, and producing honey on a large scale has taught me the value of the best stock, and what the best queens reared from that best stock mean to the honey-producer. I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then by crossing these different strains and selecting the best and breeding from them I have secured a strain of stock that is the equal of any for honey-gathering.

Delanson, New York, July 10, 1902.
MR. ROBEY—Dear Sir: The queens that I bought of you two years ago were the finest lot, and the best honey-gatherers of any queens I ever had, and I have had over 1000 queens from the principal queen-breeders of the United States. E. W. ALEXANDER.

Warranted queens in any quantity, 60c. each. Safe delivery and satisfaction guaranteed or money refunded.

L. H. ROBEY Worthington, W. Va.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Lease of apiary, Southwest Michigan preferred. C. S. Downer, South Haven, Mich.

WANTED.—Bulk comb and extracted honey. State grade and price. E. A. Hearn, Salisbury, Md.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—Comb honey; state price, kind, and quantity. We pay cash. D. E. Nuckols, Rondo, Va.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—A quantity of untested or mismated Italian queens on short notice and at low price.
B. Walker, Clyde, Ill.

WANTED.—Quantity lots of gilt-edge, new, white-clover comb honey, plain or tall sections preferred. Also light-grade extracted in 60-lb. cans.
B. Walker, Clyde, Ill.

WANTED.—A real old violin; write at once, giving description, age, and price. Isaac S. Kern,
Route 9, Athens, Ohio.

WANTED.—To know where I can buy 300 box or frame hives of bees cheap, in Southern States.
L. F. Wahl, Groton, N. Y.

Situations Wanted.

WANTED.—Situation with a bee-keeper in Cuba or Jamaica, for six months or term of years.
F. G. Denzinger, Olean, N. Y.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

For Sale.—Barnes foot-power saw.
H. H. Jepson, 237 Park St., Medford, Mass.

For Sale.—Clover and basswood honey in 60-lb. cans. Sample free. G. A. Bleech, Jerome, Mich.

For Sale—10,000 ginseng plants at 5 cts. apiece while they last. John L. Funk, R. D. No. 1, Tiffin, Ohio.

For Sale.—My apiary of 75 colonies, in fine condition, in eight-frame hives, J. P. Moore's strain. Write for prices. H. E. Johnson, Graettinger, Ia.

For Sale.—On account of my husband's death, I will sell cheap about 80 colonies of bees, hives, supplies, etc., all in good condition. Net proceeds a year were $450 to $500. Mrs. Wm. W. Combs, Beauvue P. O.,
St. Marys Co., Md.

For Sale.—100 colonies of bees, cheap, and in good condition; with crop or not. J. B. Summers,
Berthoud, Larimer Co., Col.

For Sale.—A 1½ H. P. steam-engine; has gasoline-burner with all attachments, in first-class condition. Write for further information and price.
Lyman G. Glazier, Route 5, Dover, Del.

For Sale.—80 colonies of Italians on Hoffman wired frames, nice straight combs. Good location on tide-water navigable river. No competition. Write for particulars. H. W. Bass, Rumford, Va.

For Sale.—Second hand 60-lb. honey-cans. Good as new. Satisfaction guaranteed.
Lewis C. & A. G. Woodman, Grand Rapids, Mich.

For Sale.—Finest quality, extracted white-clover honey at 7½c. per pound, in cases of one new 58-lb. can. Sample, 8c. R. & E. C. Porter,
Lewistown, Ill.

For Sale.—Five-gallon square tin cans used for honey, at about half price of new cans. For prices, etc., address Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

For Sale.—Slightly damaged hives at a very low price; first-class in every way, Lewis make, both eight and ten frame. Can ship at once.
Lewis C. & A. G. Woodman, Grand Rapids, Mich.

For Sale.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. Hyatt, Shenandoah, Page Co., Iowa.

For Sale.—500 colonies of bees in Root's 10-frame hives in fine condition. Will sell in lots of 50 or upward. Also fine 100-acre farm at a bargain. Write or call quick for full particulars.
Udo Toepperwein, San Antonio, Tex.

For Sale.—1000 supers of our own make for 4¼x4¼ x1⅞ sections for Langstroth 8-frame hives, empty, at 13 cts. each. With section-holders and separators added at 30 cts. each. Write early, for they will not last long. Write us for bee supplies.
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For Sale at a Bargain.—200 col. of bees in S. W. Texas, with locations included in fine bee range. For particulars address Homer H. Hyde,
Cor. Alex. St. and Cinci. Ave., San Antonio, Tex.

For Sale.—900 colonies of bees in one lot, or 500 and 400 separately, located one to six miles from Montrose, Col., commanding one of the best alfalfa ranges in the West. Uncle Sam is now constructing the Gunnison tunnel to fully water the entire valley, which will make this the cream of all irrigated country. Address J. S. Bruce, Montrose, Col.

For Sale.—Apiaries consisting of 500 colonies of bees; also, 1904 honey crop of 60,000 pounds of comb and extracted alfalfa honey. Address
Dr. Geo. D. Mitchell & Co.,
340 4th St., Ogden, Utah.

For Sale.—Queens! For the balance of season I will sell Italian queens from the very best honey-gathering strains. Untested, 50c. each; tested, 75c. each. W. J. Forehand, Fort Deposit, Ala.

For Sale.—440 colonies of bees in 8 and 10 frame Langstroth hives, all on straight combs. Also other bee-fixtures. Located in heart of alfalfa country. Would give possession 1st of October. Good reason for selling. Cooper & Hopper,
La Junta, Colo.

Wanted.—Cash offer for my ranch in Cuba. On the good road between two towns. Transportation by train, boat, or road. Stream of water runs through the place. 150 Danz. hives and all supplies necessary for coming *honey-flow this winter*. Only those meaning business answer. L. Maclean Beers,
No. 101 Aguiar St., Havana, Cuba.

For Sale.—White-clover and buckwheat honey, comb and extracted, limited quantity, and good quality. Mail sample, 5c. W. L. Coggshall,
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FOR SALE.— 000 pounds white comb honey, best offer gets it. QUIRIN-THE-QUEEN-BREEDER,
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FOR SALE.—Finest quality of extracted white honey, at 7½c per lb. in cases of two 60-lb. cans. Sample free.
DAN. S. KITSON, East Jordan, Mich.

FOR SALE.—100 four-frame nuclei of three and five banded Italian bees on Danzenbaker brood-frames, at $3.50 each. Three-banded Italian queens, 75c each.
W. L. WOMBLE, Raleigh, N. C.

FOR SALE.—On account of not having room in my cellar to winter all the bees I have, I will, for the next 30 days, sell full colonies of pure Italians in nine-frame hives at $4.00 each. Hives are in good condition. In lots of five, will give one super with each colony. Safe arrival guaranteed. F. A. GRAY,
Redwood Falls, Minn.

FOR SALE.—100 winter cases. Having moved one of my yards to a deep-snow location, where bees do not winter well in chaff, I offer for sale 100 winter-cases, built for ten-frame hives. Of course, they can be used for an eight-frame hive, and give room for more packing. They are built of ⅜-inch white pine, boarded up and down. The front, rear, and sides are built separate, so they can be shipped K. D., and a small nail in each corner holds them in place when in use; have a sheet-steel roof, which has always been kept painted. Order in even numbers, as the stands go with them, and are built in pairs, and form the bottom of the case. They have been used only five seasons, and are nearly as good as new. 75 cents each takes them.
E. D. TOWNSEND, Remus, Mich.

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FANCIERS' MONTHLY, San Jose, California.

---

100 Tested Red-Clover Queens for sale at $1.00 each; doz., $10.00; untested, 75 cts each. Will also sell 50 colonies of Italian bees at $4.50 per colony; in lots of five or more, $4.00.
FRED LEININGER,
R. F. D. No 1. Ft. Jennings, O.

Baby Nuclei, a booklet by Swathmore: tells how to mate many queens from unfinished sections—simple, laborless, cheap—boon to honey-men, 25c. "**Increase**" tells how to form colonies without breaking full stocks—little labor, big results, 25c.
Queens for sale. **E. L. PRATT, Swarthmore, Pa., U. S. A.**

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For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

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PITTSBURGH TO

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Detailed information regarding rates and routes to all points West, together with folder containing map of St. Louis and the World's Fair Grounds, cheerfully furnished on application to

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Ass't G. P. A., 320 Fifth Ave., Pittsburg, Pa.

Low Rates to the South

are made on the first and third Tuesday of each month by the

SOUTHERN RAILWAY

at which times round-trip tickets to points in the South and Southeast are sold at **ONE FARE PLUS $2.00.** A splendid opportunity is thus afforded the residents of the North and West to gain knowledge personally of the great resources and possibilities of a section which is developing very rapidly, and showing results which are most satisfactory. . . . . Low-priced lands, superior business opportunities, unexcelled locations for factories can be obtained, or are offered, in all the States reached by the Southern System. Illustrated publications and full information upon request. . .

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CHAS. S. CHASE,
AGENT,
Land and Indust'l Dept.,
Chemical Bldg.,
St. Louis, Missouri.

M. A. HAYS,
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225 Dearborn St.,
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Wanted! Lovers of Good Books to write for list of 200 titles to select from. Beautiful cloth-bound $1 books mailed 3 for $1. These story books are by the best authors, 200 to 500 pages. **The FRISBEE HONEY CO.,**
Ref. Publishers of Gleanings.) **Box 1014, Denver, Col.**

GOODS IN SEASON.

Cases for marketing comb honey.
All kinds of packages for marketing extracted honey. . . .
Glass jars for canning fruit . .
Bee-escapes for taking off honey.

Every thing the very best.

Standard-bred Italian Queens. Full line of the best Bee Books. . .

We yet have a full line of hives, sections, comb foundation, and every thing necessary for the bee-keeper. **Big discount on all goods for next season's use,** if ordered at once. Order now and save money, and be in time for next year. *Catalog Free.*

C. M. Scott & Co.,
1004 E. Washington St.,
Indianapolis, Ind.

NOW IS A GOOD TIME

TO REQUEEN.

REPLACE all old wornout queens with young, vigorous, and healthy ones. We can supply such queens for 50c each, by return mail. Our strain of three-banded Italians are the bees for honey; try them. Send for price list, and see what others say. Untested queens 50c each. Tested $1 00.

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. LAWS, Beeville, Texas.

QUEENS! THE BEST can always be had at 75c each for untested; $4.25 for six; $8 00 per dozen. Tested, $1.50 each. Best breeders $5 each. Safe arrival and satisfaction guaranteed.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

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The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

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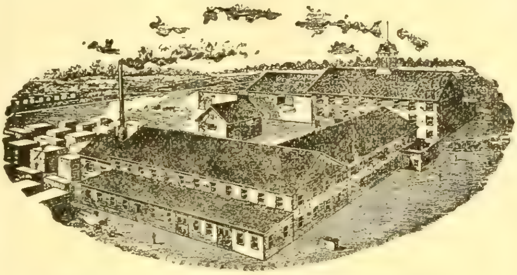


KRETCHMER MANFG. CO.
Box 60, RED OAK, IOWA.

BEE - SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

I. J. Stringham, New York,

Keeps in stock a complete line of

Apiarian Supplies 1-1b. sq. Jars, with corks, $5.00 gross. No. 25 sq. Jars, $5.75 gross. 12-oz. Jars (best seller) $5 gross. Liberal Discount on more than one gross.

Apiaries--Glen Cove, L. I. Salesroom--105 Park Place, N. Y.

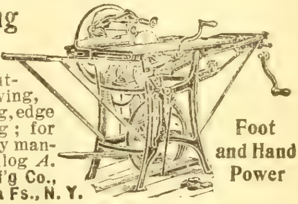
SPRAY PUMPS
The Pump That Pumps
SPRAY PUMPS
MYERS
Glass Valve
Double-acting, Lift, Tank and Spray
PUMPS
Store Ladders, Etc.
HAY TOOLS
of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers
with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.
F. E. MYERS & BRO.
Ashland, - Ohio.

SHIPPING CASES AND CRATES.

24-lb. no drip cases, 2-inch glass, $13.00 per 100; 12-lb., $8.00. Crates to hold 8 24-lb. cases, 30c. No. 1 sections, $4.00; No. 2, $3.50. Foundation, smokers, bee-hives, wholesale and retail. Send for list.

Soper, Route 3, Jackson, Mich.



Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
The Seneca Falls M'f'g Co., 44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

DID YOU LOSE HALF OF YOUR BEES?

Then save money by ordering your stationery and honey-labels of us. Samples and prices free. It is in the doing we excel, and not in talking about it.

Young Brothers, - Girard, Penna.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee=keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey=boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee=smokers, Bee=veils, Pouder Honey=jars, and, in fact,

EVERYTHING USED BY BEE=KEEPERS.

Headquarters for the Danzenbaker Hive.

During this month (September) I will offer a ***Special Discount of 7 per cent for Cash orders***, for goods wanted for next season's use. During October the discount will be 6 per cent. These discounts apply to orders for hives, sections, foundation, etc., but not for honey-packages or shipping-cases, or goods for immediate use. One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer.*

HONEY

I have on hand a large stock of extracted honey in 60-lb. cans, white-clover or water-white alfalfa. A single can of either at 8½c per pound. Two cans in a box at 8c per pound. Bee-keepers having a demand which exceeds their supply can here avail themselves of an opportunity.

Have you noticed what the leading Bee=keepers of Indiana have been saying about my line of goods? Here is another sample letter. . . . . .

Alexandria, Ind.

Walter S. Pouder, Indianapolis, Ind.

Dear Sir:—I have been dealing constantly with you for 15 years, and in all that time have not had a single cause for complaint. Your goods come promptly every time. In 1897 and 1903, both good honey years, and in the rush, when a single day's delay meant a loss in dollars to me, yet order after order was filled promptly and correctly. To me the name Pouder is a synonym for promptness in business. I can recommend you to those who need supplies in time for the harvest. Truly yours, Evan E. Edwards.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

Convention Notice.

UNITED STATES HONEY EXHIBIT.

Brother Bee-keeper:—The National Bee-keepers' convention will be held Sept. 27-30, in St. Louis, in the Christian Endeavor Hotel. By special arrangement all bee-keepers are to board in the same house.

At my expense, at the convention I expect to have a honey display by means of a large map of each State and a shelf to hold 1-lb. square clear glass jars. Each State shelf will show every kind of honey the State produces. At one glance you can see in geographical order all kinds of honey. Each jar will be labeled, telling from what gathered, and by whose bees—a good way to advertise honey. I ask your assistance at once.

On a postal card, name the kinds of honey samples you can send me at once. I hope my shipping-bottles will reach me before your reply, so I can be ready to send, by return mail, shipping instructions. One hundred bee-keepers are helping me; $2.60 express on first package received from California.

Please answer by return mail, stating the kinds of honey you can furnish me.

Platteville, Wis. N. E. FRANCE.

Mr. Root:—Would you please call the attention of the members of the National to the Central Entertainment Bureau and its services? I stopped there myself, and found it a most excellent and respectable place, and every word true as they give it. The address is 4048 Cook Ave., St. Louis, Mo. Take 18th St. car going north from Union Station; transfer to Washington Ave. lines going west; get off at Sarah Street, and walk one block north to Cook Ave.

J. P. ROHLINGER, Linn Creek, Mo.

Aug. 22, 1904.

The South Texas Bee-keepers' Association will meet at the Court House, Beeville, Texas, Wednesday and Thursday, Oct. 19 and 20, 1904. All bee-keepers and others interested are invited to attend. No hotel bills to pay.

E. J. ATCHLEY, President,
L. W. BELL, Secretary,
Beeville, Tex.

The Fulton and Montgomery Co.'s Bee-keeper's Socity will hold their next meeting at the Central Hotel, Market St., Amsterdam, N. Y., on Tuesday, Sept. 20, at 10 A.M. All interested in bees are cordially invited to attend this meeting. T. I. DUGDALE, Sec.

West Galway, N. Y., Aug. 26.

The Missouri State Bee-keepers' Association will meet in convention in St. Louis, Sept. 26, 1904, in the same hall to be used by the N. B. K. A. Further particulars to be announced later. Arrangements are being made by C. P. Dadant for our accommodations in connection with the National

W. T. CARY,
Sec'y M. S. B. K. A.

From the best information obtainable at this writing the Vermont crop looks to be of extra fine quality, but in quantity it will be considerably short even of last year. This was occasioned by the great loss of bees during the past severe winter.

Judging from the number of letters we have had from other sections it looks as though there would be a crop quite up to the normal, and sufficient for all demands.

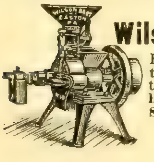
We know there has been quite a little honey carried over at this market from last season, mostly by people who buy for speculative purposes, and were not quite posted. This, of course, came on the market early, and, at first, had a tendency to affect the ruling prices.

BLAKE, SCOTT & LEE.

Boston, Mass., Aug. 9.

[This should have been given in our last issue but was crowded out at the last minute.—ED.]

Make Your Own Fertilizer
at Small Cost with
Wilson's Phosphate Mills



From 1 to 40 H. P. Also **Bone Cutters**, hand and power, for the poultrymen; **Farm Feed Mills, Graham Flour Hand Mills, Grit and Shell Mills.** Send for catalogue.
WILSON BROS., Sole Mfrs., Easton, Pa.

Oldsmobile
Built to run—and it does.

In selecting an automobile

You want the greatest road efficiency This is measured by the actual horse-power transmitted to the wheels, divided by the weight of the machine.

The Oldsmobile Runabout **has the greatest road efficiency of any runabout made,** 5x6 cylinder, 7 actual horse-power, weighs 1100 pounds—making the horse-power per 10-lb. weight, .636.

You want a reliable road machine. The Oldsmobile has proven itself superior to all others in this respect. It is the only Runabout that has been driven across the American continent. Also took **every** prize in the famous English Reliablity Run in September, 1903.

You want simplicity in mechanism. The Oldsmobile has fewest parts—it is the result of 20 years' experience in gas-engine building. The chances of its getting out of order are reduced to minimum. There's "nothing to watch but the road ahead."

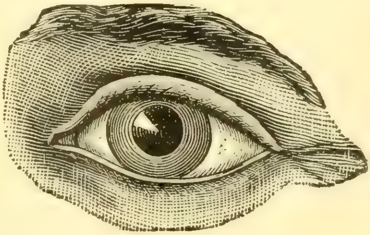
You want your money's worth. The Oldsmobile costs $640—and it's worth it.

Send for our catalog telling about increased power, speed, etc. Shows our new pattern Touring Runabout, $750; Light Tonneau, $950; Oldsmobile Delivery Wagon, $850.

Free demonstration by our nearest agent.

**Olds Motor Works,
Detroit, - - - Mich.**
AGENT

Mr. Bee Man!



am looking for your orders for queens. I please others, why not you? My trade has increased five-fold in the past four years. . . .

64-PAGE CATALOG.

**J. M. Jenkins,
Wetumpka, Alabama.**

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in
BEE-KEEPERS' SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

Dittmer's Foundation
RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

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BINGHAM
SELF CLEANING
BEE SMOKER

If You Want a Smoker

That goes without Puffing—Clean, Durable, and Handy—

Oldest, newest, and embracing all the improvements and inventions made in smokers, send card for circular to

T. F. BINGHAM,
FARWELL, MICH.

Volume XXXII. SEPTEMBER 15, 1904. Number 18

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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

ENTERED AT THE POSTOFFICE, AT MEDINA, OHIO, AS SECOND-CLASS MATTER.

GLASS

for

Extracted Honey!

We have a car load of glass jelly tumblers coming about Sept. 1st.

Get our prices; we can save you money.

Write at once giving sizes wanted so that they may come in the car.

LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

Seven Per Cent Discount.

In order to reduce my large overstock, and make room for other goods now held at the Factory, I will allow a 7 per cent discount on orders of $10.00 or more if the order is received before the first day of October. This will include any thing in the catalog.

Yes, They are Root's Goods,

and you can order either from their catalog or mine. But if you haven't my 36-page catalog send for it at once, as it contains my specialties, that Root's does not. Don't wait until the last day, **BUT ORDER NOW.**

Yes, I will take all the Beeswax you have in exchange for goods.

George E. Hilton,
Fremont, Michigan.

DISCOUNTS

For the New Season---for Cash Orders.

During September, 7 per cent.
" October, 6 "
" November, 5 "

And you get Root's Goods. Tell us what you want, and we will tell you what it will cost. Our Catalog for the asking.

M. H. Hunt & Son, Bell Branch, Mich.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

* * *

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Queens Now Ready to Supply by Return Mail; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above. **Prices for Untested, during June, one, 75; six, $4.00; twelve, $7.50.**

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

New York.—Comb honey.—Arrivals of new crop are very light as yet, none to speak of, nor does there seem to be much demand as yet, and prices are unsettled. We think, however, that when arrivals begin to be more plentiful, within the next ten days or two weeks, there will be a demand for fancy white at 15, No. 1 at 14, No. 2 at 12@13. Extracted honey is selling fairly well at 6@6½ for white, and 5½ for light amber and amber, and dark at 5. Southern, average quality in barrels, at 52@58 per gallon. Beeswax dull and declining, choice grades selling at 28@29.

Hildreth & Segelken,
Sept. 8. 265-7 Greenwich St., New York.

St. Louis.—This honey market is still in a very unsettled condition, and prices are ruling low on account of the very limited demand, and is quotable as follows: Fancy comb, 14; A No. 1, 11@12; No. 1, 10@11; No. 2, 8@9; No. 3, 7@8. Prices on all grades from No. 1 down are nominal. Extracted in five-gallon cans is ruling at 5@5½, and in barrels and half-barrels at 4@4½ for new Southern. There are no arrivals of new white-clover or alfalfa honey as yet. Beeswax is quotable at 28.

R. Hartmann & Co.,
Sept. 8. 14 So. Second St., St. Louis, Mo.

Cincinnati.—The tone of the comb honey of this year's stock is becoming stiffer, producers claiming it to be not so plentiful, and therefore ask higher prices. I quote fancy white comb honey 13½@15. Extracted is showing no change. Amber in barrels, 5¼@5½; in cans, ½c higher; water-white alfalfa in cans, 6½; fancy white clover, in barrels, 6½@8. Beeswax is more plentiful, brings 28c.

C. H. W. Weber,
Sept. 7. Cincinnati, O.

Albany.—Honey consumption is increasing as the weather grows colder. Selling fancy white comb, 15@16; A No. 1, 15; No. 1, 14@14½; dark and buckwheat, 13. Advise early shipments, for we think prices will be less two months hence. Extracted white, 7@7½; mixed, 6½; buckwheat, 6½. Beeswax, 28@30.

MacDougal & Co.,
Sept. 10. 375 Broadway, Albany, N. Y.

Toronto.—The price of honey has advanced since we last reported. Comb honey is selling from $1.50 to $2.25 per dozen. Extracted, 7@8½. The impression seems to be that the crop will be short.

E. Grainger & Co.,
Sept. 9. Toronto, Can.

Chicago.—The market is now showing more activity. Some small lots of fancy white clover have been sold at 14c. per pound, No. 1 ranging at 12@13; very little call for other grades. Extracted, white, brings 6@7; amber, 5@6, according to quality, flavor, and style of package. Beeswax, 28@29.

R. A. Burnett & Co.,
Sept. 8. 199 South Water St., Chicago, Ill.

Toledo.—The market on comb honey at present remains quiet on account of the enormous receipts of fruit. However, fancy white clover and linden shows, in a retail way, 15; A No. 1, 14; amber, 12. Extracted white clover, in barrels, 6; in cans, 6½; amber, in barrels, 5; in cans, 5½. Beeswax, 26@28.

Griggs Bros.,
Sept. 7. Toledo, Ohio.

Schenectady.—There is a very good demand for both comb and extracted; white selling at 13@15, according to style and quality. Buckwheat not very plentiful, and crop is reported short. We quote 12@13; extracted, light, 6½@7; dark, 6@6½ in kegs or barrels.

Chas. McCulloch,
Sept. 8. Schenectady, N. Y.

Buffalo.—The demand for honey continues very slow. There seems to be a little more inquiry about prices, and think demand will soon improve. Fancy white comb, 14@15; A No. 1, 13@14; No. 1, 12@13; No. 2, 11@12; No. 3, 10@11; No. 1 dark, 11@12; No. 2 dark, 10@11. Fancy white extracted, 6½@7; amber, 5½@6; dark, 5@5½. Beeswax, 30@32.

W. C. Townsend,
Sept. 8. Buffalo, N. Y.

Kansas City.—The honey market has improved a little, but prices are not advancing as fast as we expected. Fancy comb honey is selling slowly at $3.00 per case; No. 1 is moving very readily at $2.75; but there is very little call for amber and the darker shades of stock. The extracted market is slow at 6@7. Very little beeswax arriving, but is in good demand at 30 cts.

C. C. Clemons & Co.,
Aug. 19. Kansas City, Mo.

Philadelphia.—Very little comb honey has arrived in the market as yet, but extracted honey has come in quite freely for the last two months, both from the South and West. There seems to be quite a crop of extracted honey throughout the country. Comb honey has not all been graded up yet, and we can hardly tell at this early date definitely about the price. We quote: Fancy comb, 15@16; No. 1, 14@15; amber, 10@12; extracted white, 7½@8; amber, 6½@7; dark, 6. Beeswax, 27. We are producers of honey, and do not handle on commission.

Wm. A. Selser,
Sept. 7. 10 Vine St., Philadelphia, Pa.

STANDARD BRED QUEENS.

BUCKEYE STRAIN RED CLOVER.
GOLDEN ITALIANS. CARNIOLANS.

By Return Mail. Safe Arrival Guaranteed.

PRICES.	ONE	SIX	TWELVE
Untested	$0.75	$4.00	$7.50
Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select Tested	2.00	10.00	18.00

Select Breeders, each $3.00
Two-frame Nucleus and nice Queen 3.00

THE FRED W. MUTH CO.,
No. 51 WALNUT ST., CINCINNATI, OHIO

FOR SALE.—Light colored honey, fine flavor, barrels, 7c; cans, 8c; amber, 6@7. Sample, 10c.
I. J. STRINGHAM, 105 Park Place, N. Y. City.

FOR SALE. — Our new crop of extracted honey, consisting of white clover, raspberry, and clover and basswood mixed, is now ready for the market. It is in 60-lb. cans, two in a case; also 10,000 lbs. of amber, in barrels and cans. Say how much you can use, and kind, and I will mail you a free sample and quote you our lowest price. E. D. TOWNSEND, Remus, Mich.

WANTED.—New crop white comb honey. Describe what you have, and state price.
EVANS & TURNER, Columbus, O.

WANTED.—Comb and extracted honey on commission. Boston pays good prices for a fancy article.
F. H. FARMER, 182 Friend St., Boston, Mass.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & CO., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year Write us if you have any to dispose of.
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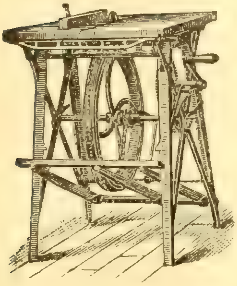

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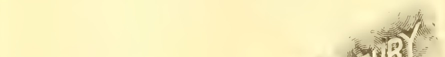

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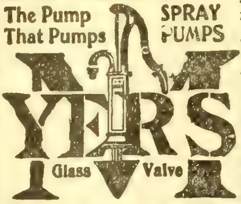

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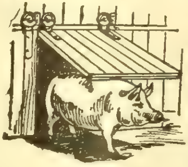

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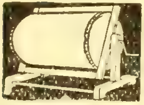

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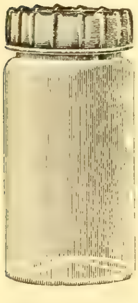

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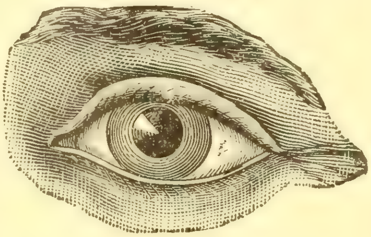

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A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

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$1.00 per Year
Medina, Ohio.

Vol. XXXII SEPT. 15, 1904. No. 18

Stray Straws

By Dr. C. C. Miller.

I'M THANKFUL to say that the lame back mentioned last time is now in good repair. What a nice thing it is to be able to get up and down like other people, and to turn over in bed without making faces! [We are very glad, doctor, that you are now better, and that it was nothing worse than a lame back. —ED.]

CROWED too soon! Two weeks ago I said a queen less than a day old would be accepted anywhere. Since then I've lost three, dropping each into a nucleus at time of removing laying queen. Other cases of the same kind have worked all right; also two full colonies with laying workers. [In a regular queen-rearing yard one will see several cases of this kind, although it is a rule that young virgins are usually accepted without trouble. —ED.]

FURTHER EXPERIENCE with baby nuclei makes me less satisfied with no brood and just a few bees. Sometimes it's all right, but too many times the queens are a long, long time without laying, or turn up missing. My apologies to ye editor. [As I have before stated, we have succeeded very well with these baby nuclei without brood; but experience has taught me, at least, that bees do better with brood in any hive than without. If an expert like Mr. Pratt can operate these miniature hives without brood it does not follow that the beginner could do likewise. The reason I advocated the use of brood was because I believed that the reader needed every favoring condition. —ED.]

A DISCOURAGED young friend who has foul brood wants me to say here whether it's best to give it up or make a fight. It all depends. If you love the business — as you say you do — make the fight by all means. If foul brood should attack my bees — it's within 12 miles of me — I'd take a certain grim pleasure in seeing how well I could keep the fell disease at bay; and I don't believe it need interfere such a great deal with getting regular crops of honey. Indeed, the treatment of foul brood is much the same as making shaken swarms, and shaking each colony is much the same as treating each colony. A genuine bee-keeper give up for foul brood? Never! [*Hear! hear!*—ED.]

STENOG says, page 836, "Who has ever made a quotation on propolis by the pound?" Who has ever made an offer? If a fair price is offered I think I can furnish a few pounds when sections are scraped. [A gentleman connected with the manufacture of some kind of shoe-polish called me out of the convention of the National Bee-keepers' Association that was in session in Chicago some two or three years ago, and asked me if I could get for him some propolis by the pound. He said he would be willing to pay a good price. I put an announcement in GLEANINGS, and I think we secured for the party enough to test some of his formulæ on which he was working. I have never heard any thing more, and so I suppose that propolis is either too expensive or was not adapted to the purpose. If any one is in position to give us information we shall be glad to hear from him.—ED.]

TWO MEN, both of them careful observers, give us different times for the development of a queen. Doolittle says 16 days, p. 838; T. W. Cowan says 15, British Bee-keepers' Guide Book, p. 10. Is it a difference in locality? Mr. Cowan would no doubt have good ground for his view, seeing it has stood for years in a text-book of wide circulation; and seeing that, previously, 16 days was the shortest time given. He would hardly want to butt his head against all previous authority without having it padded with well-ascertained facts. In this connection it is interesting to recall that, only about forty years ago, the accepted time was between 17 and 18 days. See *American Bee Journal*, Vol. I., page 199. [Doolittle's article, if you read it carefully, harmonizes, I think, very nicely the statements made by different authorities; for you will remember he says that the time of incubation, if I may use the term, depends on conditions, for he found there were some variations, and that those variations were due to certain conditions.—Ed.]

Mr. Wm. .M Whitney makes a good fight against priority rights, page 847. Far enough back it would probably have been objected that no one had exclusive right to land; yet it has come about that a good bit of land is now exclusive property, and prior occupation has figured no little in deciding possession. If the greatest good to the greatest number is to be considered, should there not be some way by which a bee-keeper could feel as secure as a stock-raiser in occupying a certain territory, so that the public could be sure that the nectar should not go to waste? What inducement is there for you, friend Whitney, to invest money in a plant if you know that next year there is a likelihood that a similar plant will be located on each of the four sides about you, so that little nectar will be left for you? I wonder now if you and I couldn't make some such compromise as this: Let government take possession of all the bee territory, just as it did of the land, and by some equitable means dispose of it so that bee-keeping may be a stable business without making any appeal to priority rights. Or have you something better to propose?

A California correspondent ordered a queen, and says, "The queen arrived Sunday evening. I called Monday evening, and the ants had eaten queen and bees Sunday night. Now, is the postmaster responsible for the loss of the queen?" That's a question in law rather than bee-keeping: If the postmaster were in the habit of receiving mail matter liable to attack from ants, which he took care to protect from them, and neglected that care in this case, he ought to be willing to stand the loss. If he knew nothing of the danger, he was not to blame. The editor knows more law than this scribbler. What does he say? [Uncle Sam, in consideration of the low rate at which he transmits ordinary mail matter, does not guarantee safe arrival, nor indemnity against injury, unless the package is registered, and even then the indemnity is limited to $25. In the case under consideration, no recovery could be secured, in my opinion, even if the queen had been registered. The average queen-breeder guarantees safe arrival so that the loss in this case would fall on the breeder and no one else. Neither Uncle Sam nor his officials are supposed to know any thing about queen-bees. That they are admitted into the mails at all, breeder and consignee taking their own chances, is as much as we can expect.—Ed.]

When a colony is made queenless, "the bees at the start take larvæ of the right age, but later on keep on building cells for larvæ that are too old," says the editor, p. 835. Exactly what they do here, and exactly what I've said. What I've been trying to squelch, and what has been upheld by some good men, is the libel on the good sense of the bees, which says, "When a colony is made queenless the bees are in such haste to rear a successor that they select larvæ too old for good queens." I have never hinted that they would not use too old larvæ when no better were to be had, and I have stated as a trouble with the Alley plan, that, when the bees did not at the start use all the material given, they would later on start cells when the larvæ were too old. The question is, "Will the bees, of choice, select too old larvæ?" not, "Will they use too old larvæ when nothing better is to be had?" If it were not asking too much, I'd like to have you try this experiment: Unqueen a colony, and, five days later, give it a frame of young brood, and see if further cells are started on the old brood. But I know a trick worth two of that, which I have used successfully right straight along. Keep your breeding queen in a nucleus with one or two frames of brood, and bees enough to cover as many more. Give successively frames with slight starters, and, when nearly built out, or more than half built out, and filled by the queen, take and give to a colony from which one comb with the queen has just been removed. You know the preference the bees have for cell-building on new soft comb, so the cells will be nearly all started on this new comb — scarcely a cell on any other — I had 40 cells started on one such comb. Now, I can't tell you why, but the important point in the case is that the bees do all their starting at the beginning, and no cells are started when young larvæ are no longer present. Possibly the explanation is this: The bees find this beautiful soft comb so much to their taste, so easy to handle for cell-building, that they start at once all the cells they desire, and have no wish to start any later. *Is there any proof that bees, of choice, select larvæ too old when younger larvæ are present?* [These questions will be referred to our men in the bee-yard, with instructions to carry out the experiment and report in Gleanings.—Ed.]

Pickings from Our Neighbors Fields
By
"Stenog."

The use of javelle water in case of stinging is recommended by several French journals. One editor says the objection to outward applications is that the remedy can not be applied to the virus itself, which is under the skin; and yet he says this remedy seems to be an exception in his experience. Javelle water is a chlorinated solution of potash, and can be obtained, doubtless, at any drugstore very cheaply. It is a powerful antiseptic, and good to have in the house in case of stinging by ivy or nettles.

* * *

It is the custom in many parts of France, according to *Gazette Apicole*, when a farmer dies, to stop all kinds of work and activity on the place as much as possible, even the horses being given a rest. It is believed that bad luck will follow if some such respect is not paid to the defunct. If he was a bee-keeper, it is customary, in some parts, to strike on the hive three times, and tell the bees that such a one is dead. In the valley of the Hem they use this formula: "Awake, little creatures of the good God. A great misfortune has just happened. Your master is dead." After the burial the bees are informed of it, which are then at liberty to pursue their wonted work. Such a superstition is mild when compared with some that were rife in England in old times, one writer in Butler's Feminine Monarchy, printed in 1609, telling with all seriousness how the bees built an altar and celebrated the Lord's supper.

* * *

I have thought at times that enough had been said regarding the use of honey for food; but as new evidence is coming in all the time, especially from Europe, that honey is worthy of all that has been said in its favor, perhaps it is best to keep the matter before the world for some time yet. I should like to read the honey reports about three months after the benefits of honey as a food could be made known to the world. The price would rise, no doubt. The following is from the pen of the eminent Dr. Sangrado, and first appeared, I believe, in *Abeille Bourguignonne:*

> Sugar constitutes, together with meat and fat, an indispensable food for the maintenance of the normal equilibrium of health. It is necessary to eat these three articles in order to be well, while waiting for the ideal dishes the chemists have so long promised us.
>
> Up to the present time we have only milk as a complete food—that is, including the three substances mentioned as being necessary for a daily ration. Sugar is represented to a great extent in fruits, except that kind which we use to sweeten coffee. One gets but little of it from vegetables. It exists extensively in meats; but the quantity which one thus assimilates is quite insufficient.
>
> In winter one has at his disposal, as sugared dishes, nothing but pastry, canned stuffs, and honey. Pastry is very indigestible, and can not serve as a regular food. Then there remain canned stuffs and honey. The first are but slightly valued, and justly. As for honey, it seems to me its usage is rather limited, and that is a great pity, for it is a food and a medicament of the first rank. Many people, especially in the country, might own, without any great expense or pains, a hive of bees.
>
> Honey includes, in large quantity, sugar in conjunction with other food substances in a form eminently easy to digest and assimilate. It does not irritate the stomach, and passes through it rapidly, for it is not digested by that organ, but rather by the intestines, as are all the sugars. Thanks to the properties in it, it is easily assimilated by the intestines without overloading them for any undue length of time, as is the case with certain ripe fruits. Besides, it is very nutritious, and nearly every particle of its own weight is assimilable. I say nothing as to its taste. Each one can settle that for himself.
>
> Honey is a medicament which can be used for various purposes. Dyspeptics, whose real treatment consists in a strict food regimen, should use it as a dessert in place of cakes, fruits, and nuts, such as almonds.
>
> Honey has still one more advantage, which is that it acts as a mild laxative, and that is a valuable property for habitual constipation, which gives rise to many disorders.
>
> Without doubt it is owing to this double action that honey owes its reputation as a narcotic. Hence it may be recommened for sleeplessness. Two spoonfuls of honey in a glass of water will suffice to induce sound sleep all night.
>
> It is probable that honey, in such cases, serves to displace indigestible foods, which, retained in the stomach, disturb our nightly rest.
>
> That is not all. Honey mixed with water serves as an excellent gargle, having, besides, the merit of being very agreeable to the taste, either swallowed by accident or on purpose, for honey mingled with water is delicious; and the ancient Gauls thought such a beverage was the drink of the gods, and termed it hydromel.

Conversations
With
Doolittle

PREPARING FOR WINTER.

"What! preparing your bees for winter so early, Doolittle?"

"I thought I would pack and get a few ready along as I had time, Mr. Brown. There is no prospect of any more surplus honey this year, and, as I have all my sections off, it will be better to get the bees ready for winter now than to wait longer about the matter."

"Why? I thought November or the first of December was early enough to do this work."

"Well, it is better to do it then than not at all; but disturbing the bees thus late in the season is not conducive to good wintering."

"Why not?"

"On the first cold weather in October the bees form their cluster for winter, and go into a partially quiescent state after having surrounded the cluster with honey near at hand, so it is within easy reach of them, and all disturbing of the hive after that causes them to break cluster and go into an unnatural excitement that tends to throw them out of their normal condition. But were this not so, why should the packing of bees and preparing them for winter be put off till the cold, snowy, or sloppy weather of early winter?"

"I do not know that I can give any good reason, come to think of it seriously, and I believe you are right in getting them ready as soon as the honey harvest is past and the supers are off the hives—at least I will try a part of mine that way as soon as I get home. I see you do not pack very heavily."

"No. I learned some years ago that two to three inches of packing proved better than more."

"Why should that be? Would not six inches of chaff or sawdust keep out more cold than two or three?"

"That would look reasonable; and if the packing kept dry I presume the thicker amount would answer as well. But a large amount of packing seems to get damp, so that the sun does not warm it up and dry it out, as does less, and so the walls to the hive remain cold and damp—yes, ofttimes almost wet—and the bees do not seem to do as well on this account as they do where a little more cold works through in extremely cold weather, and the sun warms and dries things out whenever it shines."

"Have you any special means of allowing the bees to pass through the combs?"

"No. Do you think any such thing is necessary?"

"I think so. Have you never noticed after a cold snap in the fall that there will be little clusters of bees, from three to twenty or more, dead between the combs outside of the main cluster?"

"Yes, sometimes. What do you think makes this state of affairs?"

"I reason like this: On the first cold spell the cluster of bees is obliged to contract in order to maintain the necessary degree of heat required; and in doing so those occupying the outer ranges of comb, being in a sluggish state from the influence of the cold, fail to pass up and around the combs quick enough to keep up with the receding cluster, hence are left to perish with the cold."

"Reasoning thus, what do you do?"

"To obviate this loss I have what I call 'winter-passageways' through the center of the combs. You know that, in old box-hive times, when bees rarely if ever died in winter, they used cross-sticks in the center of the hive to give the bees an extra attachment for their combs."

"Yes."

"Well, the bees always left holes around these sticks, and that gave these outside bees a chance to draw up with the cluster, through these holes, and hence bees wintered better in those days. To make a movable-comb hive something like those old box hives used to be, I make holes through the center of the combs each fall, so that the bees can crawl through, and I have had my bees winter better than of yore."

"You have got on to the old idea of some 25 years ago, when the makers of hives used to put a curled shaving on a strip of tin long enough to bring the shaving about to the center of the frame, when the upper end was fastened to the under side of the top-bar of the frame. But, so far as I know, few, if any, of our most advanced apiarists use those things now."

"Why don't they use them?"

"Because they do not think them of any special advantage, nor believe that those little clusters of dead bees are of any value."

"Of no value? If they are of no value, what bees are of value, pray tell?"

"Bees that have vitality enough to go around the combs with the rest of the bees which go."

"Do you mean to say that the reason these bees are caught away from the main cluster in these little clusters of from three to twenty is because they do not have vitality enough to winter over?"

"That is just what many of our bee-keepers think."

"What reason have they for thinking so?"

"I do not know that I have ever asked others for their reasons; but my reason for so thinking is that, when this old idea was at its height, a quarter of a century ago, I was infatuated with it, and bored holes in the side of my hives, fixing a little door over the same, when every fall I would open these doors, as soon as all comb-building was through for the season, and before the bees formed their cluster for winter, and insert a square stick with a sharp point, and slowly worm this stick through to the back side of the hive, when, after the bees had cleaned it out, I had a hole through every comb in the hive, just where I wanted it, right in the center."

"Well, I declare! that was a novel way of doing it. And after this you think such a procedure of no value?"

"I do so think; for when the combs were so fixed I found that these little clusters of dead bees would be on the combs just the same, and I actually found clusters of them with the bees within less than half of an inch of these holes."

"That seems strange to me. How did you account for it?"

"After a little watching I found that such death of bees rarely occurred except during the first heavy freeze each fall, and this led me to investigate the matter closely, said investigation proving to my mind that the bees died from lack of vitality, or old age, rather than from not being able to keep up with the cluster by being chilled."

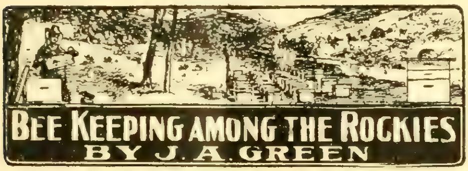
"I do not see it yet."

"Usually we have much cool cloudy weather two to four weeks before the first severe cold, so that old bees do not leave the hive to any extent to die, as they do all through the summer months, so that the number of dead bees dying from this cause would be considerable, providing none were chilled. But instead of dying at once, at this time of the year, these old bees seem to linger along through the dormancy of the bees at this time of the year, and so gather in these little clusters, where they remain in a half-dormant state till caught by the extreme cold, or a warm time comes when a chance is offered for a flight. If a flight occurs, I have often found them clinging about on old boards, fences, corners of the hives, etc., and I presume, if you will think, you have seen the same."

"Yes, I do remember seeing such things, but I had no idea that these nearly dead bees, sticking to every thing, were those I would find dead after a cold snap in late fall or early winter, if no flight had occurred."

"Then another thing. I noticed that, where a cold snap came immediately after the bees had had a flight, there would be scarcely a bee caught away from the main cluster, this showing also that those caught at any other time were too nearly gone with old age to keep up with the cluster. For these reasons I left off making holes through my combs, for it was not only quite a job to make these holes, but a worse part was that the bees would fill them up every summer, and with drone size of cells at that. This would cause a lot of drones to be reared when and where I did not want them."

"Well, I am glad to have had this talk with you; and, while not thoroughly convinced that you are right, I shall keep watch of the matter; and if time proves that you are, it will be of value to me."



BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

INTRODUCTION.

The loss to the bee-keeping world by the death of Mr. Morehouse can be appreciated by any one who has read his writings, but much more so by those who have known him more intimately. I had not often had the pleasure of meeting him, but I have had considerable correspondence with him, and from this as well as from his published writings I had learned to appreciate his sterling worth and his clear insight into bee-keeping matters that, if he had been spared, would have made him even more of a power in apicultural circles.

It is with much reluctance and diffidence that I pick up the pen that has been removed from his grasp by the Ruler of all. So high a standard has been set that I fear my inability to reach it satisfactorily. The only way in which I can approach it is through the co-operation of the bee-keepers of the West. I ask your help in all matters pertaining to this department.

I shall be very grateful for any information you can give me in regard to bee-keeping matters, especially crop reports. If there is any thing in which I can serve your interests I shall be glad to do so. This department is for your benefit. Help me make it interesting and valuable to you.

* * *

Alfalfa did not yield as well here as common. One of the reasons, in this locality at least, was that the grasshoppers ate the blossoms. Fields that had been a week in bloom did not have as many blossoms on as at first.

* * *

If there is one thing more than another in which the average Colorado bee-keeper is wasteful, it is in regard to wax. Many bee-keepers having large numbers of colonies do not save an ounce of wax. A solar extractor, rightly managed, will return a handsome profit in most apiaries.

In a recent number of the *Western Bee Journal* the nonsensical old theory that bees use their stings as trowels to finish capping the honey, and that they inject poison into it to preserve it, is revived; and one would suppose that the editor is only mildly skeptical in regard to it. We should not blame the editors of ordinary papers too severely for their wild stories about honey when such things appear in bee-journals.

* * *

Cakes of beeswax usually need a little scraping on the bottom to make them fit for market. Perhaps you do this the way I used to—at ordinary temperatures and with much labor. Lay your cake of wax upside down on the grass in the hot sun until the part exposed to the sun is thoroughly softened, while the rest is still hard. You can then scrape it as deeply as you wish, and do it easily. Do not lay it on a board or the bare ground, or it will get hot where you do not want it to.

* * *

Sweet clover has again demonstrated its value as a more reliable honey-plant than alfalfa. The best yields of honey have been in the localities where sweet clover was most abundant. At my home apiary, as well as as at other places, the best work done by the bees throughout the season was immediately after nearly all the alfalfa had been cut.

Yellow sweet clover is being planted quite extensively by some. It is not only earlier, but a more constant bloomer than the white. After the white had nearly all gone to seed, plants of the yellow, growing alongside, were still blooming profusely.

* * *

Even in the "arid" West we sometimes suffer from too much water. A few days ago a cloudburst in the hills north of us produced such a flood of water that the ordinary channels could not carry it, and a wide stretch of country was covered with a raging torrent. My out-apiary lay in its track, and the lower part of the hives was filled with a sticky mud, and most of the entrances entirely closed. Several colonies were smothered, and a number badly damaged, while a great deal of fine comb honey was melted down. A neighbor fared even worse, losing nearly all of his bees, about thirty colonies.

* * *

The season in this part of Colorado has been very disappointing. The weather has been so cool nearly all of the season that there seemed to be little nectar in the blossoms. Colonies generally were not in good condition at the beginning of the honey season. At the close of fruit-blossoms, nearly all were in fine shape, but they went backward after that.

Bees that were fed regularly fared better; but there was almost no swarming, and only the strongest colonies stored much surplus during the first flow from alfalfa. The second flow yielded somewhat better, and in some locations very fair crops have been secured. It is too early to speak definitely; but it is my opinion that the honey crop will not be over 75 per cent of that of 1903.

◆

The status of the 4×5 section appears to be that it sells a little more readily, but will not bring any higher price, in most markets at least. The reason it is preferred seems to be that, to many people, it looks larger than it really is in comparison with the regular size, and in this self-deception of the buyer lies its only advantage over the square section. Cases weigh somewhat more; and if 1½ sections are used they are apt to go considerably over the weight required by the grading-rules. To the large producer it is a serious matter to give away a pound or two of honey with each case. Aside from these considerations, I believe it costs me more to produce 4×5 than the regular.

◆

One of our correspondents advises the editor to visit a soap-factory to learn how to cut up candied honey. Perhaps a visit to a brick or tile factory would answer as well. There the clay as it comes from the machine is cut into lengths by a swinging frame, usually made of gas-pipe, with holes drilled at proper intervals through which pass hooks with thumbscrews for adjustment. Over each set of hooks is looped a piece of steel piano wire, kept taut by the thumb-screws. In this way pieces of exact size can be cut very rapidly. No doubt this is on the same principle as the one in use at the Home of the Honey-bees; but I have described it, as some might wish to make one for themselves, which would not be hard.

[It is the same in principle.—ED.]

◆

The bee-keepers of the Plateau Valley, one of our best honey-producing districts, have united with the fruit-growers in an association that seems to have worked very well the past season. Two carloads of bee-keepers' supplies were distributed at very satisfactory prices. A large amount of stock has been subscribed, and buildings are to be erected this winter for warehouses, etc.

The association here has not met with the support among bee-keepers that it has deserved, and it has been necessary to order supplies through the Fruit-growers' Association here. The only objection there could be to co-operating in this way is that here the fruit-growing interests so far overshadow those of bee-keeping that there is little financial benefit to the honey-producer in the union.

◆

Do not use too much smoke in removing honey. Honey is sometimes badly damaged by the undesirable flavor thus given it. Try it by putting a few drops of honey on a board and smoking it a few seconds. Unsealed cells in honey to be extracted will acquire this flavor in the same way. I have heard of large crops of extracted honey that all tasted of smoke, reducing its value materially. Sealed honey will not absorb the smoke so readily, but even that will be affected by too much smoke. Cappings cut from honey that has been smoked much will taste strongly of the smoke, and even the honey drained from them will be flavored. Hot smoke is worse than cold in this respect, and care should be taken not to hold the nozzle of the smoker too close to the honey. Comb honey should always be taken by means of a bee-escape, except in times of great plenty when little smoke is needed.

◆

Now is the time to requeen your colonies. There is a chance for a difference of opinion as to whether it is profitable to requeen all your colonies each year, but this much is certain—that it will pay you well to replace every queen whose colony has been below the average in honey-production. We may add to this every queen that is more than a year old, unless she is an extra good one. If a queen is much above the average I would follow the good old rule of letting the bees supersede her themselves. If your time is valuable, and there is no honey-flow in prospect, you can simply remove the old queen and insert a ripe cell in a cell-protector. Ordinarily it will pay you better to raise your queens in nuclei by some of the modern methods. If you can not do any thing more you should at least give each colony whose queen should be replaced a ripe cell in a cell-protector, this without paying any attention to the old queen. Many of these young queens will be allowed to supersede the old queens. If your queens' wings are clipped, as they should be, you can easily verify their replacement. This method requires little labor, and tends to improvement of stock.

◆

Most bee-keepers and many queen-breeders are not careful enough about breeding for nice comb honey. We all know that white comb honey sells best, and that the watery-looking cappings that some bees make detract very largely from the appearance of the honey. Some seem to imagine that all Italians produce honey that has more or less of this water-soaked appearance. This is not true. Some strains cap their honey almost as white as the black bees. It does not cost any more to produce white honey than the watery-looking stuff, and the difference in selling price may be considerable. It will pay to get a strain of bees that make nice comb honey, and replace every queen whose bees cap their honey so closely.

I got a few queens from one of the most widely advertised breeders, several years ago; but when the bees of this supposedly superior stock began working in the supers I promptly pinched every queen's head. These bees were all right for extracted honey, but they were poor workers for comb honey, and their honey did not look nearly as nice as that made by the stock I had. This is one of the reasons why it may pay you better to improve your own stock by careful selection than to buy your queens.

* * *

Stones on covers have other uses than to keep them from being blown off by the wind, though they are valuable for that, especially at out-apiaries. It is true the bees will stick them fast if they have a chance; but the sticking process requires time, especially in cool weather, and one does not feel easy when he reflects that the apiary he may not see again for a week may have half of the covers blown off.

The best cover for a hive, in my opinion, is a plain flat board. But no matter how well you cleat such a cover, some of them will warp and twist, especially when exposed to the dry air and hot sun of the arid region. In fact, I have never seen a flat cover that would not do so. Cracks in the top of the hive do not conduce to good work in the super, nor to the well being of the colony at other times. It is to avoid these cracks that many use cloths. The cloth keeps the top of the hive tight, and the cover protects the cloth. I prefer not to use the cloth. If a cover twists so that it does not make a good fit, I lay a fifteen or twenty pound stone on it. Obstinate cases may require a stone on each of the raised corners. It takes some work to handle these stones, it is true; but I have never found any satisfactory way to dispense with them. The double cover used by many in Colorado is almost as much of a nuisance as the stones, which do not have to be used on all hives at all times.

* * *

Are you going to sell any honey in paper this year? Better try it if you are so situated that you can establish a market for it. Do not say that you can not do it because the demand does not exist. In most places you will have to create the demand, because it will be practically a new article. This is no more than the enterprising dealer in many other lines of business has to do. You can do it, and in the end it will mean an increased demand and a better market for your honey.

Put it in paper bags as late as possible, just so that you can get it to run through your honey-gate. If it is not convenient for you to get the regular Aikin honey-bags, you may be able to find something at your local stores that will answer. Some of the ordinary paper bags are all right, while in others the paper is too porous unless the bags can be placed in a very cold temperature at once after filling, until they are solid. This may be avoided by waxing; but as this requires something of an outfit to do it properly, you would better get the regular honey-bags if you can. If you use the thin paper bags they will probably need an outer wrapper, on which an ordinary honey-label can be pasted.

Let me suggest that, for the grocery trade, you use a size that will retail for 25 cts.; and that, if you are going to retail it yourself, you put up all that you can afford to for a dollar, and make a point of its cheapness as well as convenience. The strong point in favor of the paper package is that the consumer pays practically nothing for the package. The saving to the producer over putting honey in small glass packages, in the way of labor, is also enormous.

Editorial
By E.R. Root.

THERE seems to be an immense amount of white clover all over the fields. The frequent rains throughout the country have given it a vigorous growth.

THERE are many good hints in the new department in this issue, "Bee-keeping among the Rockies." Mr. Green is going to make a good paragraph-writer.

I EXPECT to be present at the National convention at the Christian Endeavor Hotel, near the World's Fairgrounds, St. Louis, from Sept. 27th to 30th. This will be a big meeting, and an important one. Every bee-keeper who can should come.

SELLING HONEY EARLY.

A REFERENCE to the many reports seems to indicate a scarcity of new honey on the markets. A year ago at this time there was considerable in comparison with what we find now. No doubt many bee-keepers are holding back for better prices. This is all right; but do not wait too long. Take my word for it, if you do not get your honey sold before January, you will rue it. Sometimes honey is allowed to lie in the hands of the commission man a month or six weeks before a buyer is found.

THOSE MINIATURE OR BABY NUCLEI.

THESE are giving splendid results, notwithstanding the nights are quite cool, and the clusters of some of the larger nuclei of the old-fashioned kind have drawn pretty compactly together. Indeed, the bees in the small ones seem to have the advantage over the large ones. The box in which they are confined being very small, it permits them to confine the heat in small compass. The result is that both sides of the two little combs are literally covered with bees, and there are eggs and brood on all four sides; yet the aggregate amount of surface of these two combs is equal to only a third of a Langstroth frame.

We find absolutely no trouble from robbing. The queens are fertilized readily, and, what seems to be apparent, even *more* readily than they are in larger nuclei where there is so much cubic capacity to warm, and where the brood area may be scattered over a large surface. This morning, Sept. 9, when it was quite cool, we opened up several of the little boxes without smoke; and, while the bees were ready to offer attack, those covers came off so easily that the bees very soon accepted the situation, without protest. It is our intention now for next season to discard entirely all standard Langstroth-frame nuclei, and use these little boxes containing two frames that are just the right size so that six of them will go inside of a Langstroth frame.

CLEANING SECTIONS ON WIRE CLOTH; A GOOD POINTER FOR PLAIN SECTIONS.

Mr. C. A. Olmsted, in the *Review*, is credited with the idea of cleaning sections of propolis by rubbing them over a piece of coarse-mesh wire cloth stretched tight over a wooden frame. The cloth cleans every thing except the beeway, where, of course, the wire can not reach it. Does not this argue pretty strongly for the no-beeway section? By the way, it seems to me some one has already spoken of this matter in this columns, but I do not remember when nor where. Will those who have tried it please report?

INTRODUCING WITH THE OLD QUEEN IN THE HIVE; SCENT OF BEES.

I think it was Mr. E. T. Abbott, of the *Modern Farmer*, who has for some time been saying that it was not necessary to make a hive queenless two or three days before introducing another queen; to put a queen, as soon as received, into the hive, taking out the old queen at the same operation, or a day later if more convenient. Many facts go to show that Mr. Abbott is right. Indeed, our own experiments indicate that one can keep both queens in the hive at the same time, the old queen to lay right along up to within a few hours of the time when the new queen is to be released. She is then to be taken out, and the other queen will be accepted just as if the old queen had been taken out several days before. Nor is there any thing strange about this. Dr. Phillips has shown that bees recognize each other entirely by the scent. If this is so, it does not make any difference how long the old queen is in the hive, providing there were not two loose at the same time. If the new queen has acquired the scent of the bees of the hive she is just as much a part of the colony, and will be accepted as readily, as though she had been in the hive as long as the old queen. So far as the bees are concerned, they would tolerate both queens; but when the two come together, there is a combat, and the one that is victor is allowed to be the reigning queen. But if the new upstart does not have the same scent as the old queen, then the bees will take a hand in the fracas, balling the new comer. The scent of the bees is very acute—probably as much so as that of a dog, that can trace his master over a pavement that has been walked over by hundreds and possibly thousands of people, the scent of whom is all different.

IS A BICYCLE SUITABLE FOR VISITING OUTYARDS?

A correspondent in the *Bee-keepers' Review* says when a man "goes to an outapiary on a bicycle, he has done a good day's work before he gets there." This is not according to my experience, and I therefore judge that the correspondent in question had never ridden a bicycle enough to toughen his muscles to the point where riding is a real pleasure rather than a wearisome exertion. I have ridden repeatedly to our outyards on a bicycle, and have done a good day's work on arriving at the yard. I have sometimes been very tired from working in the yard, feeling as if I could not drag my feet around any more, when, presto! as I got on my machine a new set of muscles were brought into play in a *different way;* and on arriving home it is an actual fact that I felt refreshed and rested. Why don't I go to our outyards now on a bicycle? Because the automobile is quicker, and enables me at the same time to carry along extra stuff.

When I visited Mr. Coggshall, his gang of men were in the habit of going to the outyard on bicycles, and he would go around with a wagon carrying the necessary supplies and bringing back the honey. The boys could do up one yard, and then in a short space of time go to another very much quicker than it would be possible for them to go with a horse, enabling them thereby to accomplish very much more.

Perhaps some of my readers may not understand how it is that, when one is tired, he can do another class of work and become rested. Let me give an illustration:

When my boy and I were doing the St. Louis exposition we found that a slow stroll among the exhibits was very tiring; and sometimes when we had quite a distance to go we found that, by walking briskly, or taking a slow "dog trot," it would bring into play another set of muscles, bringing about a sort of rest that was very agreeable, almost equal to sitting down for a few minutes. The change of work in a bee-yard is so very different from the work of riding a bicycle that one feels rested after a ride.

I said a while ago that perhaps the correspondent for the *Review* had not ridden a bicycle enough to toughen his muscles. I know of quite a number of my friends who have taken up bicycling for two months or so, and abandoned it. Why? Because pushing the machine tired them too much. That was somewhat my experience at the very start; but after one has learned to economize his strength, and has given Nature a chance to rise to the emergency, he finds that what was once an exertion is now a pleasure.

DR. C. C. MILLER AND HIS FAMILY.

I HAVE before told our readers that, if there is any place in this wide world where I feel entirely at home, outside of Medina, it is at the Dr. Miller residence; and I should judge there are some other people who feel the same way. In the *American Bee Journal* for July 14 appear two half-tone reproductions which, by the courtesy of that publication, I am enabled to present here, together with a sketch accompanying:

FOURTH OF JULY AT DR. MILLER'S.

For several years Dr. Miller has extended to us (Mrs. York and the writer) a most cordial invitation to come to Marengo and help eat, fresh from the vine, some of the luscious strawberries that grow on his farm, which is located a mile south of the town.

Finally, we decided to go, and did so on Saturday, July 2, arriving in Marengo about 7 o'clock in the evening. Very shortly after arriving and greeting the members of Dr. Miller's family, we began to eat strawberries. We had them every meal until Monday evening; and then, lest we should too soon lose the "strawberry-eating habit," we brought several boxes of them home with us. We certainly never ate more delicious strawberries.

On Sunday we attended the Presbyterian church and Sunday-school, being members of Dr. Miller's Bible class. In the evening there was a patriotic service, there being also present members of the Grand Army Post and Woman's Relief Corps. The popular pastor, Rev. Mr. Van Page, delivered a fine address appropriate to the occasion. The music by the choir was in excellent keeping with the rest of the service.

All day Monday, the Fourth, we visited and talked bees. We went into the home apiary and opened a few hives, but it was a little too cool to do the best work with the bees.

Dr. Miller had supers on such colonies as were ready for them, a few hives showing three supers each. He had taken off only two supers full of honey. White clover seemed it be in abundance, with white sweet clover just coming into bloom. Previous to the opening of the honey season, the doctor had, all ready to put on the hives, 26,000 sections in supers. His faith seemed to be large. We hope he may have all those sections filled with honey by the end of the season.

DR. C. C. MILLER.

MISS EMMA WILSON.

Dr. Miller's family consists of Mrs. Miller, her sister, Miss Emma M. Wilson, and their beloved mother, Mrs. Wilson, who is 84 years of age. She is a dear old lady, eats her three meals a day, and is as happy and contented as any one could well be. What a benediction is such a person in any home!

On this page are the latest pictures of Dr. Miller and Miss Wilson, the photographs having been taken about two months ago. Especially pleased will be the women of beedom, who receive the *American Bee Journal* regularly, to see the picture of the one of their number who so ably and entertainingly conducts the department of "Our Bee-keeping Sisters" in this journal. We are sure all would be glad to know her better, or to have the privilege, as we have had, of spending a day or two under the same roof with her in Dr. Miller's delightful home. But the next best thing is to have her picture and read her department from week to week.

Dr. Miller holds his 73 years exceedingly well. We only hope that he may be spared to the world yet many years. All beedom does well to hold him in the highest esteem and honor. He deserves it. There are too few like him in the world.

The Miller home is indeed a happy one; and the happiest one, perhaps, of all is the old mother, whose faith in God, in the blessed hereafter, and in the children who surround her, fairly shines forth from her face. Indeed, such people are a benediction to any family. Dr. Miller is fortunate too in having such efficient bee-help in his wife and sister-in-law. There is no friction — every thing seems to work along just like clockwork.

Whenever I am in the vicinity of Chicago I always make it a point to run up to Marengo; and if you were anywhere in the vicinity you would hear enthusiastic conversation, and every now and then peals of laughter. We very often get into a good-natured argument, and as a general thing Emma is on one side of the fence and I on the other. I don't really know *why*, unless she has not quite forgiven me for quoting the statement of a boy when once I was trying to find the Miller residence. It was late, and I had just wheeled in from Chicago, and I was in doubt where to go. Said the boy, "You just follow this road; and when you come to the place with weeds* and things in front, turn in." Nor has she forgiven me for taking various photos of the Miller hives that had rags stuck in the cracks to stop up the holes. It is but fair to say that at that time Dr. Miller was about to discard his old hives and purchase new, but was not quite clear in his mind as to what kind of hive to adopt, and so he pieced out the holes with some rags. They were very fantastic, and one morning I busied myself with taking various kodak pictures of some of the hives on the sly, intending to put them in GLEANINGS as a good joke on the doctor. Now, Miss Wilson saw me—said I was "not fair to take this mean advantage." So she pulled out the rags, and after she got an armful I turned the kodak on her, taking a couple of shots.

"Now, Mr. Root, don't you *dare* use those pictures in GLEANINGS."

I insisted so strenuously that I would, that I left her very much in doubt of my real purpose until I was about to leave, when I finally promised her they would never see the printed page. I had the pictures developed and printed, and that is as far as I have gone, and they are in my private collection. I suppose I shall get a scolding for even making mention of the rag-bedecked hives; but time and distance protect me.

Laying all nonsense aside, Dr. Miller is to be congratulated in that he has two such able assistants — Mrs. Miller and her sister, Miss Wilson. The doctor has told me that they were rushers, more than equal to two average men. In some classes of work they are very much quicker, and always neater. Indeed, in respect to this last-named quality I think they would much surpass the average woman, and it therefore is no small wonder that they protest at the libel of "weeds and things," and rag hives.

Well, whenever I visit the Miller home I always feel that I am the gainer in bee-lore, even if I do get worsted in the arguments sometimes; and somehow I feel that I am the gainer in spiritual things, for Christ dwells in that home.

THE NEW YORK PURE-FOOD LAW; TRADING ON THE GOOD NAME OF HONEY.

THE Tenth Annual Report of the Department of Agriculture of New York is before me. In it I find a copy of the New York honey law, which I believe is the most stringent of any law of the kind in any State, but no more stringent than it ought to be. It provides that there shall not only be no glucose mixtures palmed off as pure honey, but that no compound of honey and glucose shall be put out wherein the word "honey" is displayed prominently, and the other ingredients shown up in small type. The other ingredients must have the same prominence. This is the actual text itself:

> SEC. 80-b. *Relative to selling a commodity in imitation or semblance of honey.*—No person or persons shall sell, keep for sale, expose or offer for sale, any article or product in imitation or semblance of honey branded as "honey," "liquid or extracted honey," "strained honey," or "pure honey" which is not pure honey. No person or persons, firm, association, company, or corporation, shall manufacture, sell, expose, or offer for sale any compound or mixture branded or labeled as and for honey which shall be made up of honey mixed with any other substance or ingredient. There may be printed on the package containing such compound or mixture a statement giving the ingredients of which it is made; if honey is one of such ingredients it shall be so stated in the same size type as are the other ingredients, but it shall not be sold, exposed for sale, or offered for sale as honey; nor shall such compound or mixture be branded or labeled with the word "honey" in any form other than herein provided; nor shall any product in semblance of honey, whether a mixture or not, be sold, exposed, or offered for sale as honey, or branded or labeled with the word "honey," unless such article is pure honey.

Notwithstanding we have an excellent pure-food law in Ohio, there are mixtures very elaborately labeled, showing the word "honey" in prominently displayed letters. In small inconspicuous wording there appears a statement to the effect that the contents of the jar consist of honey, corn syrup, and certain flavoring extracts. I was surprised to see that quite a little of this "honey" is offered for sale, and more surprised to know it sells. The presumption is that people buy it because of the displayed word "honey," and never stop to read the description in fine print; eat the stuff, are disgusted, and then will not buy *any* honey. The New York law puts a stop to this business, providing the officers whose business it is to enforce the law do their full duty.

KING-BIRDS NOT ENEMIES, BUT FRIENDS.

THE king-bird has generally been regarded as an enemy of the bee, and undoubtedly it does at times destroy virgin queens in queen-rearing yards. I myself have seen one single king-bird catch on the wing six or eight bees within as many minutes. But for all the evidence against it, a correspondent in the *American Bee Journal* believes that chickens kill far more bees than the birds, and then asks, "Why shouldn't we kill off the chickens as well as the birds?" He adduces proof, showing that, out of 281 stomachs of the birds examined by Prof. Beal, only 14 contained the remains of bees, and most of these were drones, while 60 per cent of the king-bird's food was found to consist of injurious insects. One bee-keeper shot a number of king-birds and submitted them to an entomologist, but not a trace of a bee could be found. He urges all who think king-birds are a serious enemy to bees to send a postal card to the Secretary of

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* Dr. Miller, like all bee-keepers, is opposed to cutting down sweet clover, goldenrod, and the like. His place was not overgrown with weeds, but the boy's statement furnished the basis for a good joke.

Agriculture, Washington, and get Bulletin 54, entitled "Some Common Birds and Their Relation to Agriculture."

GENERAL CORRESPONDENCE.

SOME FINE POINTS IN QUEEN-REARING.

Flanged vs. Unflanged Cups.

BY SWARTHMORE.

In his footnotes to my remarks on queen-rearing, page 601, June 15, Mr. Phillips brings forward several points in favor of a flanged cup for queen-cells which I should like to accentuate. I have found "by actual experience that the supplying of royal jelly in individual cups for queen-rearing has not only wasted my time but has tried my patience." Any operation that is entirely needless always does this. It is much simpler to spend half an hour on some cool day swabbing the entire lot of new queen-cups, be there 500 or more, and have the job over with for ever. By the royal-jelly plan, unless one is very careful color may be quickly ruined by chill, especially in early spring. We must bear in mind that the thermometer does not always stand at the desired point, therefore we must have methods that will suit all temperatures if bright queens are to be reared by grafting.

Mr. Phillips says: "When one has over a hundred cells to graft at one operation, royal jelly is absolutely necessary or the larvæ will have perished before the finish of the job." Right here is a strong recommendation for flanged cups; for by their use each larva may be immediately placed in the midst of the bees as soon as each cup is grafted, and the bees will at once commence to feed one after the other as received, be there one hundred or one thousand cups to graft. There is no long wait to fill a bar or two before the cups can be given to the bees, as is necessary when the cups are supported by tacks on the under side of a bar or in the middle of a frame. When cups are applied at top, as with the flanged ones, each and every cell will at all times be under perfect control—draw one, two, or all; no bees escape, the cluster is not broken, no smoke is needed, no prying necessary — simply draw your cup or cups or barful, interchange at will, give as the occasion demands, leave as you see fit. With flanged shells one may use the bees which started the cups, to much better advantage than when the cups are placed on the under side of a bar; for, when so placed, half the bees will escape and return to the old stand by the time one gets the hive open, the frame removed, and the lid replaced—unless the bees are stupefied in some way, and this is surely objectionable to many.

Mr. Phillips admits that the bees remove the jelly he places in his cups. Then what, in the name of common sense, is the use of putting it there if the same end can be accomplished by the use of a better plan?

In the matter of protectors Mr. Phillips holds to his rag doll with the statement that it entails but little extra work. Ah! it is these little unnecessary extras that take one's time just at the flood of orders. It would entail but little extra time to wind a string about each cup; but if of no real service, what is the use of doing so? No, bees will *never* tear down a *good* cell if built upon a Swarthmore flanged cup. Furthermore, bees will not build upon and enlarge Swarthmore flanged cells during a honey-flow as they do with the ones applied by tacks on the under side of a bar. Here Mr. Phillips has made a very strong statement in favor of top application (accomplished by the flange) of cups as used successfully in Swarthmore for over four seasons.

The principle of the Swarthmore top-bar application of cups is this: The top-bar of an ordinary brood-frame is dropped down two inches, leaving space above the comb in which to place the cells or the cages; there being no vacant space in the frame, no comb or particles of wax are built or attached about the cells, which makes them at all times perfectly removable from top, either one at a time or by the barful, without disturbance of the brood-nest. Not so when the cells are placed in the middle of a frame. When so placed, space must be left below the cells. This space the bees will quickly fill, building their combs all about the cells, which renders them entirely immovable without a delicate surgical operation. All this takes time, and makes a mess; but the bees can not be blamed, for it is only natural for them to extend their combs to the bottom-bar. If the cells are placed in a Swarthmore holding-frame, all this mess is avoided, and cell-protectors will *never* be needed, for there will never be rupture about the cells.

Mr. Phillips makes the statement that, should he place tack-supported cups in an open frame, as suggested in my criticism, May 15, he would have an arrangement quite as handy as the Swarthmore; but he would not, for the reason that he could not examine, remove, nor inspect one of his cells without removing the bar. Since Mr. Phillips has acknowledged the Swarthmore open frame an improvement, why not go one step further—add a flange and reap all the benefits from the labor-saving qualities of the Swarthmore wooden flanged cup?

If Mr. Phillips is unable to make Swarthmore mating methods work, I am perfectly willing to give any instruction he may need to make the plan as successful in his hands as it has been in others'. It is simply folly to use large frames for mating queens when a handful of bees in a little box will do the work better.

For Mr. Phillips' information I wish to say that I have had some experience with mating from full frames in different-sized colonies; and I can say that *never* has a queen-cell been torn down by the worker bees unless some rupture has first been made in or about the cell by a queen or a man.

I strengthen my statement: "Queen-cells built upon Swarthmore flanged wooden cups may be placed in *full* colonies *directly queens are removed*, and the virgins hatching from them will be allowed to live and mate, providing the cells do not hatch under twelve hours from the time of removing the laying queens."

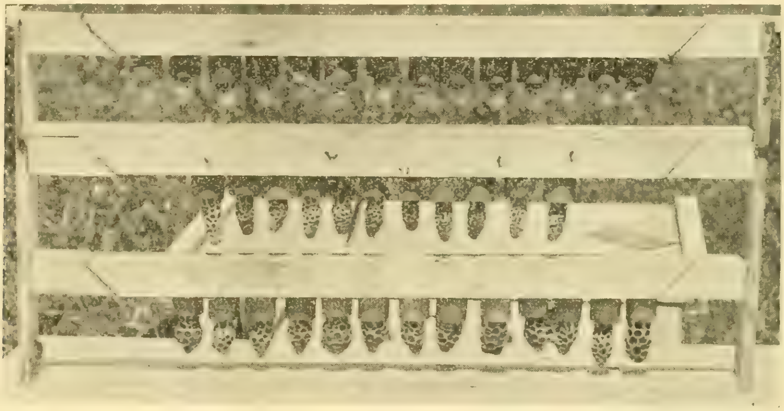
[To this Mr. Geo. W. Phillips, our head apiarist, replies:]

We thank Mr. Pratt for the valuable suggestions which he makes from time to time; but it appears that, to do all he advises, would necessitate the abandoning of our present system of queen-rearing — a system that is entirely simple and satisfactory, and adopting another with which we are ill acquainted.

I am still inclined to think that no method of preparing cells is as good as the old Doolittle mode of grafting. Why persist in talking about temperature being too high or too low for using royal jelly? I repeat my former statement, that any temperature that permits the safe transferring of larvæ permits also the use of royal jelly; and why bespeak its use needless, when, besides its other benefits, a large percentage more of cells will be rejected by its non-use? Mr. Pratt, I believe, does not graft at all, but uses a cell within a cell, the queen laying directly in the smaller one, after which it is removed and placed in position. This, although an improvement, somewhat resembles the Willie Atchley method. But I really believe that the Doolittle method of grafting goes ahead of either — at least I am satisfied that I should prefer it.

The round cell cups can be used the same as the flanged in the connection Mr. Pratt mentions. I have tried giving cells somewhat after the manner he indicated; and at first, fearing they would fall out, I bored my holes but partly through, finishing with a smaller bit, thus leaving a shoulder; but a little use convinced me that even this was unnecessary, for, boring a clean hole with a bit of the correct size, each cell would remain nicely in position.

The last discussion in Gleanings on this subject set me to thinking; and before many days I had found Mr. Huber Root's old model for a cell-frame, and, with a little extra fixing, adopted the illustrated device which I have used with success ever since. It is a regular Hoffman frame containing three cell-bars, as shown in the illustration. The bars are removable and interchangeable. The unsealed cells are on the top-bar, the older ones below, and a slate outside the hive shows the ages of cells within. This frame is taken from the hive only when cells are to be removed; and in grafting, the uppermost bar alone is handled.



THE ROOT CO.'S QUEEN-REARING FRAME WITH REMOVABLE AND INTERCHANGEABLE CELL-BARS.

As stated before, I had already tried Mr. Pratt's "baby" nuclei, but was unable to make them work. Now, the system at the time when I tried it was that of fastening the nuclei to a full colony with normal laying queen, the workers having access to all the compartments. That, I believe, was the plan that Messrs. Hooper Bros. and G. M. Doolittle tried also, and a better means of getting rid of virgin queens has not yet been described. But the Pratt system is different now, and I wish to confess frankly that I like the miniature nuclei well; and should it be my good fortune to devote one more summer of my life to queen-rearing, I have no reason to doubt that I shall have occasion to bless the "babies," and bless their "papa" too. G. W. P.

Medina, O.

[The two methods of queen-rearing are very much alike in the main principles, but differ in detail. Mr. Pratt uses a flanged wooden cup having *inside of it another wooden cup* in which the queen lays the egg. Here, it seems to us, is a complication "like a wheel within a wheel." Our people use a plain plug without any flange, having a hole bored in one end. This plug, instead of being held in position by means of a flange, is secured by a nailpoint. We sell these wooden cups by the barrel, and if we were to make the double-flange cups of the Swarthmore pattern we should have to charge the bee-keepers of the country a much higher price, and we can see no apparent gain to be secured.

While Mr. Pratt has queens lay in his cups, the inner one, yet he must remove these wooden cells from their fastening where the queen found them, and then insert them in the flanged cup — an operation that will take fully as long, even if the two fit nicely, as the grafting process that we use. In a word, we consider that our outfit is cheaper for the great mass of bee-keepers who must figure to save even the pennies, is simpler to describe, and much simpler to understand and carry into effect.

The photo here shown is simply a sample of our everyday work in the yard. In other words, the picture shows the "proof of the pudding." In saying this, we do not claim that Mr. Pratt is not able to secure equal results by his method.—ED.]

THE COMB-HONEY LIE.

How it Started; the Damage it has Done and is Doing; the Nature of Glucose.

BY W. K. MORRISON.

It would seem as if we were to have a recrudescence of the comb-honey canard in the newspaper press; and if that is the case, the sooner we are up and doing our little toward combatting this pernicious error, the better it will be for all bee-keepers.

The younger generation of bee-keepers may not be aware that the comb-honey-by-machinery canard first saw the light of day in the pages of a semi-scientific paper, the *Popular Science Monthly.* The yarn has been given the widest publicity by the newspapers until it is impossible to estimate the damage done by it to our industry. In any case the injury is very great—far greater than many bee-keepers think possible. Let us examine the canard to see how much there is of a foundation for the thing to rest on; and here let me say some bee-journals are somewhat hazy on the subject. It seems to be taken for granted that the glucose of which this wonderful honey is made bears a great resemblance to honey, and is much cheaper. Neither statement is true. Good glucose, free from all impurities, and fit for table purposes, is quoted at 50 cents per lb. in the catalog of the second largest dealer in the world. The glucose we hear so much about is *artificial* glucose—quite a different thing altogether. It is a disagreeable compound which no one who values his life would eat knowingly. I am not exaggerating at all when I write thus. Five years ago, in Manchester, England, a number of persons lost their lives by drinking beer containing only minute quantities of this same glucose. Now, what would be the result of using it in large quantities, as would be the case in using it as a substitute for honey? In the case of the beer the glucose was converted into caramel, and then used to give "body" to the beer. In the particular case I refer to, at least 30 persons lost their lives in a few weeks by this insidious poison. It was by the merest chance the discovery was made that the poison came from the beer. And this is the principal use to which artificial glucose is put. So beer-drinkers and would-be honey-mixers can take fair warning.

Buffalo, N. Y., and Chicago, Ill., are the centers of the glucose business, making it by synthesis from starch. Eminent chemists tell us that good glucose can be made from starch. Theoretically this is so, probably; but in business practice it is not. These same chemists also tell us they can make honey by artificial means; but when pinned down to it they generally find some excuse for avoiding the practical part of the question.

Sorghum or maple syrup is the nearest approach to honey we know of, hence any bee-keeper can easily decide for himself whether he need be afraid of competition from that source.

I believe syrup-makers, jelly-makers, and bee-keepers have a clear case against the glucose-factories—just as clear as the dairymen had against the oleomargarine-factories. Let *artificial* glucose be branded just as oleo is. I believe, also, that any person offering it as an adulterant should be arrested and imprisoned. Bee-keepers will have to put up a great fight to get this legislation; but people all over the civilized world are stirred up over the matter of adulteration. To get the requisite legislation we must be very clear on all important points, remembering—

> Thrice armed is he who hath his quarrel just.

It is not any easier to make a substitute for honey than it is to make butter.

Bee-keepers, and particularly bee-papers, should be careful about what they say or print about this matter. It is too important to be played with. The main point is to compel dealers to sell things for *what they are.*

In the British Islands there is a society which looks after the interests of the cane-sugar producers, and steadily secures prosecutions of grocers who sell customers beet sugar when cane sugar is ordered. I see no reason why the National Bee-keepers' Association could not take up this matter in the same way the sugar-men do in England. A very simple law would cover the whole question.

Now let me get back to the comb-honey story, pure and simple. It seems almost incredible that intelligent people should believe such an astounding yarn; yet I know that, in the towns and cities of the United States, almost everybody has heard the story and believes it. Probably honey would sell in the United States at European prices if it were not for this pernicious yarn. How to overcome this evil is not easy to tell, but something can be done. When I resided in New York the Brooklyn *Eagle*, one of the greatest of American daily papers, and said to be immensely wealthy, printed the story, with variations. It stated that comb honey was regularly made in Brooklyn, in the neighborhood of a certain street. I thought of getting up a case for myself, and consulted two friends who are eminent lawyers. One was legal counselor to the Manhattan Elevated Railway Co., and the other now occupies a place as a judge in an important New York court. Both said there was little hope of doing any thing, for several reasons, one of which was that the newspapers invariably carried their cases from one court to the next till opponents got wearied with the fighting. Now, the *Eagle* is one of the most reputable of American dailies, and St. Clair McKelway, one of the most prominent ethical writers in the United States, its editor. The article, too, was written by "a very reliable reporter." Now, what can be done? The story keeps spreading. *Chambers' Journal*, one of the oldest and most reputable of English magazines, says comb honey is regularly made by machinery; and *Nature*, the most widely read and probably the best scientific paper in the whole world, says the same thing. It is clear that this story has gone too far. There is a craving for stories of this kind, or papers would not publish them. To illustrate, I have before me a copy of the *Standard Magazine*, in which is an article advising ladies to keep pet animals, and is quite beautifully illustrated; but underneath the first cut of a beautiful specimen of a Scotch fantail pigeon appear the words "Pouter Pigeon," an entirely different sort of bird. Of course, the article is misleading. Pigeon-fanciers will tell you the newspapers constantly confuse two entirely different birds—the carrier pigeon, which never leaves its coop, and the homing and Antwerp, which carry little pellets of tissue paper for hundreds of miles. Dog-fanciers also complain of the newspaper talk about *fierce* bloodhounds, when German mastiffs are meant. It would be a good thing if we could compel newspapers to tell the exact truth, but we can't.

Is there no remedy for this evil, when even so reliable a paper as the *Ladies' Home Journal*, with so great a personage as Dr. Mary E. Walker to stand sponsor, baptizes the comb-honey canard anew? Dr. Walker is, no doubt, an authority on babies; but this one is no baby, for it has gone the rounds of the press for more than 21 years. Does she suppose for one minute the American epicures would eat a horrible mixture of paraffine, glucose, and sulphuric acid? And yet this is precisely what she claims they do. Should she run for the presidency I pray for her defeat. The editor of GLEANINGS says the *Ladies' Home Journal* is all right. So it is; but is it not the same journal which employs Mrs. Rorer, of culinary fame? If so, bee-keepers have no great reason to be proud of said journal. Ladies seem to be nearly as bad as men in misrepresenting us.

Not so long ago, Heinz, the pickle-man of Pittsburgh, sent one of his lady experts to the West Indies to demonstrate the superiority of his specialties. As I knew the Heinz factory long ago I called to hear the lady dilate on the various preparations; but happening to have a beautiful sample of comb honey in my hand she at once challenged me about it, asking me if I had a factory for making the same, telling me there was a factory of the kind in Pittsburgh, and intimating she had actually seen it at work. I got her cornered, however, when I stated I was fairly well acquainted with the Smoky City, and would be glad to be favored with the address of the factory in question. Here she refused to say any more on the subject. But Mr. Heinz would hardly like it if we bee-keepers were to return the compliment.

Why all this misrepresentation of the bee and honey industry? The answer is very simple. All industries, more or less, suffer from misrepresentation by newspapers. Just ask some one engaged in any particular line if his industry does not suffer more or less from this evil. For example, many people in New York believe that eggs are regularly made by machinery. Understanding all this we shall be better able to get a true solution for our dilemma. People read, and read any thing. Bee-keeping is a mysterious business to many. Let us take these people into our confidence.

The A. I. Root Co., G. B. Lewis Co., Falconer Mfg. Co., and all the other makers of sections hold the matter pretty much in their own hands. Let them print a direct refutation of the comb-honey canard on every section they make. Something like this ought to be stated:

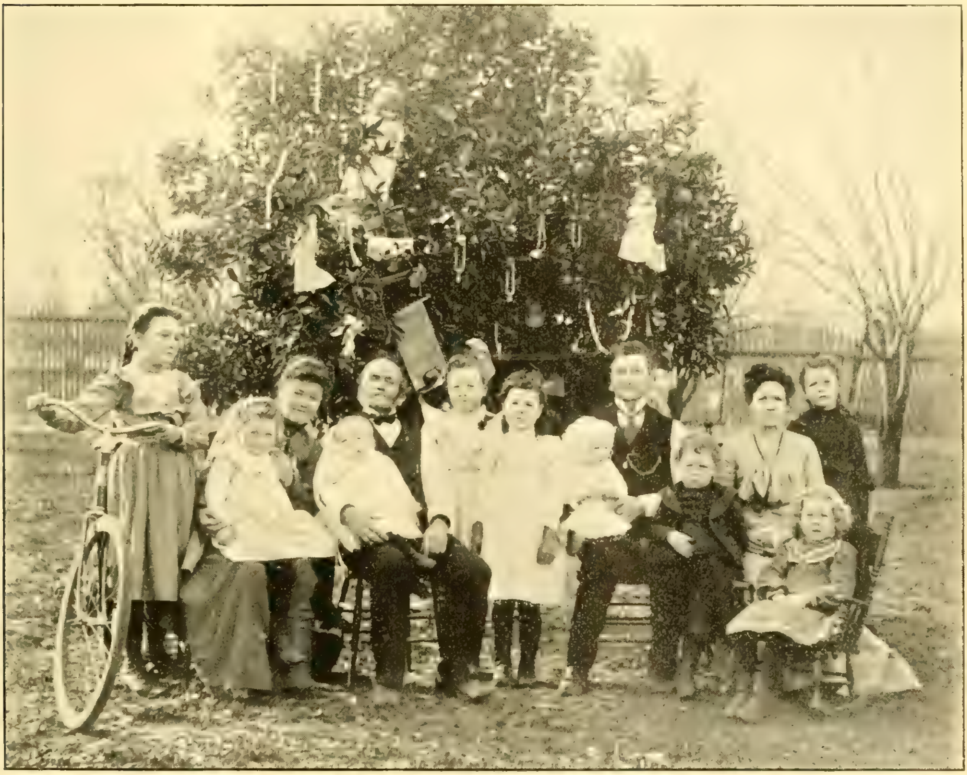
> Whereas it has been stated by many newspapers that honey in the comb is being regularly made by machinery, and palmed off on the public as real comb honey, the National Bee-keepers' Association wishes to state that no such thing has ever been done. Furthermore, the said Association offers $1000 for the first sample of artificial honey in the comb. The honey and wax contained in this box are, therefore, fully guaranteed to be the work of bees, and all dealers will be fully protected in court of law if necessary.

Figure to yourself the effect of fifty millions of sections, with this announcement printed thereon. The editor might let us know what it would cost to have this done.

It has always seemed to me that honey should command about the same price as butter; and if it were not for a certain lack of confidence we could get it. It seems, therefore, worth while to combat erroneous views, even at some expense.

There are also other ways of letting the public know the facts. There ought to be a bee-keepers' exhibition every year in all large cities, just as the poultry-keepers have them. Why not? The commissions on the sales of honey and wax at such an exhibition ought pretty nearly to pay all expenses.

It is largely the fault of the bee-keepers themselves that people believe all the yarns usually told about the bee industry. We have every thing to gain and little to lose by taking the great generous American public into our confidence. Let us toot our own horn in the future, for it seems it would be an idle waste of time to write all the papers that print "the comb-honey yarn"—Sunday papers particularly, as nearly all the matter they print belongs to the realm of romance.



A GROUP OF BIG AND LITTLE HONEY-EATERS; FAMILIES OF O. J. AND J. B. AMES.

HONEY AS A FOOD FOR CHILDREN.

The Region of Oakdale, Central California, as a Bee Country.

BY MRS. J. B. AMES.

Having been a reader of GLEANINGS for many years I have felt from time to time that I should like to tell you how much we appreciate your efforts along the line of securing a more general use of that most healthful food, honey, and the securing of a better life through your Home talks.

Your June 1st issue has articles on several lines of thought which all lead up to one goal which might be summed up as pure food, pure bodies, pure lives. My desire to help humanity to reach this goal gives me courage to send you this picture with this explanation. This is a group of the families of O. J. and J. B. Ames, taken in the afternoon of Dec. 24, 1902, showing an orange-tree bearing its golden fruit and gifts for the holiday season, making a Christmas-tree in keeping with our genial sunny clime, where the children gather wild flowers in midwinter.

Tell Dr. Emma Walker to look just beyond the fence in the picture, and she will see boxes or hives in which bees store honey, which these children consume in unstinted quantities, with plenty of milk and other wholesome food.

Our oldest daughter, Alma Union Ames, who holds the bicycle, is not yet 12; while our baby boy, Wright, is one year old, and but once in the lives of these six children has it been necessary to call a doctor for any of them. This is not a boast, but to call attention to the fact that so many children are deprived of the chance to develop their minds and bodies as they should by pure food, air, and surroundings. I am the "bee-man" on our place—never have less than 30 colonies. The children all take an interest in them.

The other trees you see in the picture are almonds. The crop is now ripe for this season, and the two families are harvesting them. The men knock them off the trees and the children sort the hulls out after they are brought in on big sheets which were spread under the trees to catch them as they are knocked off. Fig and umbrella trees make the shade for the hullers.

Fruit, berries, alfalfa, and nuts must have water for irrigation to do well here; but with plenty of water every thing does well. My bees gather honey every month in the year; but we do not have such big flows of honey as others tell about, for we have not such big fields of alfalfa.

A large system of irrigation is just completed within two hours' drive of our home, where thousands of acres of alfalfa are being sown.

We, as pioneers in the irrigation business, can recommend this new district as on the right principle for homeseekers. It is called a Wright District, and is very similar to the public-school system.

Very few men care to engage in apiculture in this part of the State, owing partly to the small acreage we have had of alfalfa; but when we have more alfalfa this will be an ideal locality, owing to rains always supplying the intermediate crops of blossoms.

Oakdale, Cal., Aug. 8.

[The picture seems to afford ample proof that honey is a healthful food. If it were more generally used instead of candy and syrups of doubtful source and character, there would be less need of doctors.—ED.]

Heads of Grain
from different fields

IS CANDYING A PROOF OF PURITY IN HONEY?

About 200 people within the last five years have learned from me that candying in honey is the proof of purity, and in my last GLEANINGS I learn that it is not. I got my information from supposedly good bee-men, among them being one practical apiarist from Germany. Now, what I want to know is: Did you ever publish a denial of the much-believed theory above mentioned? and if not, why not, seeing that it was no secret to you? And what rule, if any, can I give the curious to go by in buying or using honey to know if it is real? or will they have to have it analyzed, or keep on not knowing what they are buying? What is the cost of having a sample analyzed? Where is the best person to send it to? A. LAWSON.

Discovery, B. C.

[Some years ago I conducted a series of experiments to prove or disprove the statement that glucose would prevent the granulation of honey. Samples of honey were prepared, some containing 10 per cent, some 30, and some 75 of glucose. The ten-per-cent mixture granulated first, and so on in the order of the strength of the glucose; and, last of all, the mixture containing 75 per cent candied, but in a way that was very different from the candying of the pure clover honey. It was streaky in appearance, and looked like ordinary pure honey that is just beginning to candy. I wish with you that it were true that candying were a sure proof of purity; but if we rely on that statement we are going to make matters worse; for glucose-mixers can then (as they are already doing) point to their product and say that it candies as does ours. When such mixtures are put alongside of your honey, you have to compete with what is supposed to be pure honey, at very much less price than you can afford to sell it; and yet you have no means of proving by the candy test that such honey is not pure. The mixers of glucose have been making a strong handle of the claim that only pure honey would granulate; that their honey granulates, *ergo* their honey is pure.

Did we ever publish a denial of that much-believed theory that candying is a proof of purity? Yes, repeatedly; and it is high time that bee-keepers were disabusing their minds of this heresy, as it will do them harm in the manner I have cited.

How can any one know pure honey from adulterated? If he has ever tasted the ordinary commercial glucose a number of times so he knows its brassy twang or flavor, due to the only partial elimination of sulphuric acid used in its manufacture, he can recognize it quite well when mixed anywhere from 25 to 50 per cent with pure honey. I think I can detect it almost every time. I have been put to the test by my friends, and have recognized the adulterated article every time, and I do not claim that my taste is extraordinarily sensitive either. I will admit this, however, that a chemically pure glucose I could not detect, because the sulphuric acid has been entirely eliminated; but the ordinary commercial article, such as is used for adulterating, could be readily told.

Then there is a difference in the way in which the glucose mixtures will candy as compared with pure honey—a difference I can not readily explain.

Is there any other way in which you can enable your grocer to determine whether the honey is glucosed or not? Here is a way, although it may not necessarily prove to be reliable. If honey is put up in small packages by a packing-house that makes a business of putting up syrups, canned goods, etc., there is quite a strong probability it will be impure, especially if they handle various kinds of syrups labeled with all sorts of fancy names. Try to get your grocer to buy from the producer, or of some honey-buyer or commission house whose reputation is beyond any possible taint of suspicion. There are plenty of these men in the country, and GLEANINGS will be glad to furnish a list of them at any time it is called for. I think we may safely conclude that any honey sold by a commission house that quotes for the bee-papers is pure, *especially so* if the goods have not been repacked or recanned, or put up in bottles.

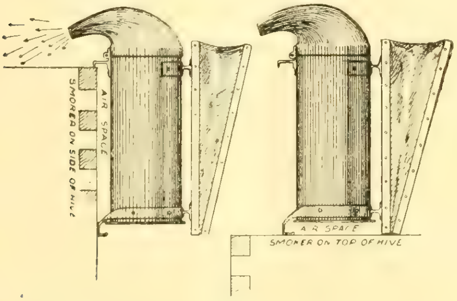
But there is no absolutely reliable way to determine whether honey is pure except by analysis; and even then, unless the chemist has made a specialty of honey he is liable to be misled, and call a pure article adulterated, when in fact it came direct from the flowers to the hive.

Chemists who have made a close study of this question recognize that there are some honeys of a peculiar character, concerning which they dare not make a positive statement as to purity. Again, a honey that is not thoroughly ripe is liable to mislead, but not a chemist who understands the nature of such honey.

Mr. W. A. Selser, No. 10 Vine St., Philadelphia, makes a specialty of analyzing honey at $2.00 a sample. More is generally charged; but as Mr. S. has special facilities for the purpose, and as he makes honey a specialty, he is able to do it at this price.—ED.]

TODD'S SMOKER WITH TWO HIVE-HOOKS.

I wish to present to the readers of GLEANINGS what I consider the ideal smoker. Wm. Muth-Rasmussen, of California, has the hook on the right side, but it is long and clumsy. By the drawing I send, you will see that the same metal which attaches the bellows to the fire-box extends on almost half way around the fire-box on each side, where it is riveted; then it curves on itself, and at the same time curves outward and downward, forming two legs which hold the fire-box off the hive while lying on top of or hanging on the side.



Now, Mr. Bingham, this is the kind of smoker Mr. Somerford wants; and if you don't put these attachments on that "Banner" smoker you are going to make for him it won't suit, for he is sure to burn his pants the first time he or his pants get in a tight place. What he wants is a smoker that he can set on top of his hives, and that will stay set, and not be toppling over, and one that won't burn his hives, and one that he can drop on the side of the hive with the nozzle pointed in the right direction; and when he can give the bees smoke any moment without having to pick up the smoker nor set it down, you have my order for another provided you put this attachment on. DR. LEVI J. TODD.

Mariel, Cuba.

[The hooks can be attached in the manner you show. I had a smoker fixed up about two years ago, with two hooks like those you show. I thought I was going to like it, but it was not as nice in practice as in theory. Still, if there are those who really want a smoker with double hooks in front we can furnish them, but, of course, at an additional price.

Incidentally it should be remarked that it would be very expensive and difficult to make a top with a curved snout like the one you show. The angle at which the smoke is deflected is wrong too.—ED.]

GROWING ALSIKE CLOVER FOR SEED, ETC.

I have raised alsike clover here for three years. The first year it made three bushels of seed per acre; second year it did no good, on account of drouth in April. This year it grew finely, and would have made a fine hay crop if cut for that. I cut it for seed, and was disappointed to get so little. Nearly all shelled off on to the ground while cutting. When is the best time to cut, and how is it cured for seed so as to get the hay also, as a Michigan man once reported? Do you think I had enough bees? I had 15 good colonies and 8 acres of alsike clover.

F. W. MORGAN.

De Land, Ills., Aug. 24.

[We have not had sufficient experience in growing alsike clover to answer the above questions. Doubtless some of our readers can do so. My impression is, the seed would not have rattled out at time of cutting had it been cut earlier. Fifteen good colonies of bees I should suppose would be ample to fertilize the eight acres so as to furnish a crop of seed.—ED.]

WHICH WAY SHOULD HIVE-ENTRANCES FACE? SHOULD HIVES BE SHADED?

I should like to know what direction bee-hives should face, and also if they should be in the shade or sun, if it makes any difference. How do you make nine to ten colonies out of one in one season?

GEORGE E. LOWE.

Morocco, Ind., Aug. 17.

[As a general thing, where there are only a few colonies entrances should face the east to get the benefit of the warm sun in the morning and the shade in the afternoon when heat is the greatest; but where there are a large number of hives in one yard it may be necessary to turn the entrances to the different points of the compass to avoid confusion on the part of the bees. As a general thing the bees should be in the sun up until about 10 o'clock in the morning, and in the shade until 3 in the afternoon. I would, therefore, advise locating the hives under trees where practicable, but not so large as to give too much shade at the wrong time. Apple-trees eight or ten years old make excellent shade.—ED.]

HOLDING HONEY FOR HIGHER PRICE.

I notice much has been said lately in regard to bee-keepers holding back their honey and then rushing it to market later, depressing prices unduly. Now, I wish to say that we common bee-keepers are not wholly to blame for this state of affairs. Last October the writer had about 3000 lbs. of fine white honey, and, not being able to sell near home, he wrote a prominent wholesale dealer in regard to the sale of it, and was given encouragement to ship to him. The honey was sent, and arrived in perfect condition in October; but in March the bulk of it was still unsold, and I have not heard from it since. I have had several chances to sell it since it was sent away. The facts are simply these: The honey-dealer accepted all the shipments he could get, and then could not dispose of them except at a great sacrifice.

J. BLACKMAN.

Nevada, Iowa, Aug. 23, 1904.

[We are aware that more than one cause has led to the low prices and depressed market. For some reason not apparent, the demand for table honey, at least in the East, seems to be confined to the months of August to December. Now, bee-keepers must take the market at its best if they would handle their product satisfactorily. A poor article can be disposed of much better while there is an active demand than later. While the better grades will sell on a downward market, we think it much better to dispose of them also while there is an active demand. Perhaps it would be well for bee-keepers to use their *best* efforts to help the honey-market by the distribution of suitable printed matter, etc., when the slack season comes, immediately after the holidays, and see if the so-called slack season can not be made better. Who can give us some good ideas for this work?—ED.]

NO-DRIP CLEATS SHOULD BE THICKER.

Frequently have I thought of writing you that no-drip cleats should be ¼ inch thick; but so constantly am I reminded how hard it is to make men hear, I have not done so. Perhaps I ought to be thankful you have heard Mr. Burnett. May his words bear good fruit! I might tell something more about shipping-cases. A. B. ANTHONY.

Sterling, Ill.

[Let us hear from others. Bee-keepers and the trade can have what they want if they will only be practically unanimous. Let's hear the other suggestions. We do not mean to turn a deaf ear; but when some say one thing and some another we don't know which way to turn. Yes, tell us more about the shipping-cases, friend A.—ED.]

WILL SHE BE A DRONE-LAYER?

Have you ever had a colony of bees hived on full sheets of foundation, and built up to a good colony, in which the queen would lay drone eggs in worker-cells, and at the same time have lots of worker brood? A neighbor has such a queen. She was hatched this year, and the colony is all her bees. I thought it rather peculiar.

H. E. CROWTHER.

North Kingsville, Ohio.

[This queen may be failing, and eventually may become a drone-layer. Cases of this kind have been on record before, and it is usually advisable to supersede them with something younger and better.—ED.]

WINTERING OUTDOORS IN CHAFF HIVES VS. WINTERING IN A CELLAR WHERE IT IS LIABLE TO FREEZE.

Would you advise me to use a chaff-packed hive, and winter on the stand, or a single-walled hive and remove to a cellar or elsewhere? Our cellar is rather damp, but not wet, and inclined to freeze during winter; also our nights are cool, especially during the spring and fall months. One has told me the moths would drive my bees out if kept in chaff hives. I favor the chaff hives.

I have but one colony, and my aim is to increase them as much as is reasonable the first year, then rear strong colonies for honey production in comb.

Why will bees winter successfully out of doors with the thermometer at zero, and in the cellar it must not reach the freezing-point?

What is the best way to increase my bees?

Sioux Falls, S. D. F. B. HILL.

[In your circumstances I would by all means advise wintering outdoors in chaff hives. A cellar that can not be kept above the freezing-point is a very poor place indeed to winter bees. We have secured the best results here at Medina with a uniform temperature of about 45 degrees. If this can not be readily maintained, better winter outdoors providing the bees are packed good and warm in double-walled chaff hives.

Why bees can stand zero temperature outdoors and not a freezing temperature in a cellar is a query that has often arisen in my own mind, and I think we can account for it almost entirely on the ground of ventilation. Where air is poor, the temperature must not go below forty. When pure and fresh it may go much below, or even down to zero; but if the temperature is liable to remain at the zero point for a month or six weeks outdoors continuously, without a warm spell intervening, the outdoor-packed hives should be protected by windbreaks (better anyhow) then the hives should be covered with loose snow. But be careful to see that the entrance does not become clogged. Your best way to increase is by shaking swarms artificially, as described in these columns last year and this.—ED.]

RETURNING SWARMS NOT SATISFACTORY.

Mr. Root:—A few thoughts along the line of returning swarms, and you can make any use of them you have a mind to. I have practiced returning swarms to the parent colony or to other colonies anywhere and everywhere more or less for the past five or six years, and with all kinds of experiences. I have but the one yard, and I think that about 80 to 100 colonies is about all that my location will stand (and sometimes I think that is too many, though I have 115 now), so I hive back and double up anyway to hold them together (and sometimes I don't succeed in holding them where I want them; then I hold where I can), and I have about made up my mind that it is worse than useless to try to return a prime swarm with a laying queen back to a full brood-nest with any degree of certainty of holding it there more than from one to four days. I am well aware that a plan will work sometimes at or near the close of the honey-flow that will not at the beginning or in the midst of the flow; and in some localities that will not in others.

Three years ago I tried, toward the latter end of the season, the plan of taking three or four frames of brood from the old colony. I cut the queen-cells from the frames left, and returned the swarm with the old queen to the colony (on the old stand), and it worked nicely the next season. I tried it again as soon as they commenced swarming; had hived back about ten or twelve swarms that way, and built up seven new colonies with the brood taken away, when all at once they commenced swarming again, and nearly all cast swarms in one day got mixed up together; and before 2 o'clock I had ten swarms all in one bunch, and it took me two days to get them straightened around again so as to know what I was doing; and five out of the seven new colonies built up cast a swarm the fourteenth day after being built, so that scheme was a failure.

As soon as I get what increase I want I kill the old queen, and run the swarm back to the old hive and cut the queen-cells out on the eighth day, which usually settles that colony for the season unless I am careless enough to miss a queen-cell. I say "usually," because it does not always. I think Dr. Miller said in the *American Bee Journal* two or three years ago that he never knew a young queen raised in the parent colony to swarm that season; but I have had three such queens lead off swarms this season, and one of them was less than 30 days old from the cell. The oldest one of the three was just 37 days old. Is the difference in the bees or in the locality?

Jarretts, Minn. S. LAMONT.

[I give it up. Perhaps Dr. Miller can answer.—ED.]

A LESSON IN BEE-ESCAPES.

At the beginning of the clover-honey flow I put a set of narrow extracting-frames on one of our colonies, thinking to get them early into the habit of storing above the brood-nest. I secured that result in short order. Wishing to substitute sections for the frames I raised them up one evening, put on a super of sections, the escape-board, then the frames, and cover over all, intending to run the bees from the frames above on to the sections. About the middle of the forenoon of next day I noticed something wrong about that stand. Investigation showed the extracting-super full of confined bees, hot, and mostly dead—melted combs, dripping honey—in short, a muss. As many as four quarts thus perished, including their laying queen. I cleaned all up as well as I could, allowed them to requeen, and secured some nice sections later on.

The cause of the trouble was too little space between the escape outlet and the board. I found two large drones caught there, cutting off the exit entirely, hence the trouble and loss. The conclusion is obvious, that the escape-board should never act as a trap. RICHARD SIMMONS.

Sylvania, Pa.

[We have had reports before of drones clogging the escapes, but the occurrences of this kind are comparatively rare.—ED.]

H. C. MOREHOUSE AND THE WESTERN DEPARTMENT.

It was with the greatest disappointment I read of the death of H. C. Morehouse, and the resultant stopping of his "Western Department" in GLEANINGS, which especially appealed to me as a Western bee-keeper as being just what I wanted—some way to keep posted locally. By all means, try to continue this department, as I feel that it fills a long-felt want among others as well as with myself. C. ALTON.

Paonia, Col., Aug. 17, 1904.

[We have made arrangements to continue the department under J. A. Green, as you will see.—ED.]

"CHUNK HONEY" AHEAD.

The honey crop around here appears to be a medium one. I have found out since I moved here that all the while I was hauling loads of splendid comb honey, and getting from 12 to 16 cts. per lb. at the stores, there are a good many bee-keepers here who produce "chunk honey" altogether, and retail it at from 16 to 25 cts. per lb. They peddle it out, but say they can sell all they can raise. J. HAMMOND.

Portsmouth, Ohio, Aug. 23.

[Similar cases have been reported at various times. Chunk honey can often be sold locally and at good prices—better than can be had in No. 1 sections. The comb honey lies are responsible for this.—ED.[

OUR HOMES, BY A. I. ROOT.

Therefore shall a man leave his father and his mother, and shall cleave unto his wife ; and they shall be one flesh.—GEN. 2 : 24.

It rather seems, friends, as if my department in this issue were to be largely letters from women; and I have just clipped a little poem from the Cleveland *Leader* that comes in very nicely with my Home talk about divorces. Here it is:

"I AM YOUR WIFE."

Oh ! let me lay my head to-night upon your breast,
And close my eyes against the light—I fain would rest.
I'm weary, and the world looks sad ; this worldly strife
Turns me to you ; and, oh I'm glad to be your wife !
Though friends may fail or turn aside, yet I have you ;
And in your love I may abide, for you are true—
My only solace in each grief and in despair.
Your tenderness is my relief : it soothes each care.
If joys of life could alienate this poor weak heart
From yours, then may no pleasure great enough to part
Our sympathies fall to my lot. I'd e'er remain
Bereft of friends, though true or not, just to retain
Your true regard, your presence bright, thro' care and strife;
And, oh ! I thank my God to-night I am your wife.

I read the above several times over, and almost every time it brought tears to my eyes. Then I called Mrs. Root and read it to her. I think I will not tell you just what she said about it. But I want to ask, how many married men are there who feel they deserve the very high compliment this loving wife pays to the husband God gave her? and how many married *women* are there who have the faith and love and devotion for the husband God gave, that is expressed in this beautiful poem? Contrast the above picture of married life with the husband and wife who have been contemplating if not discussing the matter of separation.

Another Cleveland daily told us a few days ago that there are now over 2000 divorce cases in Cleveland alone, 900 of which were carried over from last year. Eleven judges are busy with these cases, which come in twice as fast as the courts can "grind them through the hopper" as the papers put it. May the Holy Spirit strive with these poor deluded husbands and wives! and may they have grace from on high to say, "Get thee behind me, Satan." This little poem, with the prayers of God's people following it, ought to do some missionary work where it seems so greatly needed.

SOMETHING MORE ABOUT "THAT MISSING LINE" AND THE HOME PAPER FOR JULY 15.

From the large number of letters received in regard to the above, we select the following. First we have the complete poem.

Mr. Root:—We send you not only the missing line of the stanza but the whole poem.
Goshen, Ind., July 23. MRS. J. W. MARTIN, JR.

THE WELCOME.

Come in the evening or come in the morning,
Come when you're looked for or come without warning;
Kisses and welcome you'll find here before you,
And the oftener you come here the more I'll adore you.
Light is my heart since the day we were plighted,
Red is my cheek that they told me was blighted;
The green of the trees looks far greener than ever,
And the linnets are singing, "True lovers, don't sever!"
I'll pull you sweet flowers to wear if you choose them,
Or, after you've kissed them, they'll lie on my bosom;
I'll fetch from the mountain its breeze to inspire you;
I'll fetch from my fancy a tale that won't tire you.
Oh! your step's like the rain to the summer-vexed farmer,
Or saber and shield to a knight without armor;
I'll sing you sweet songs till the stars rise above me,
Then, wandering, I'll wish you, in silence, to love me.

We'll look through the trees at the cliff and the eyrie,
We'll tread round the rath on the track of the fairy;
We'll look on the stars, and we'll list to the river,
Till you ask of your darling what gift you can give her.
Oh! she'll whisper you, "Love, as unchangeably beaming,
And trust, when in secret most tunefully streaming,
Till the starlight of heaven above us shall quiver,
As our souls flow in one down eternity's river."

The last verse is a repetition of the first. The author was Thomas Davis, an Irish poet and patriot, born in 1814, died in 1846.

AN INVESTMENT THAT IS ALWAYS SAFE.

Mr. Root:—I read your Home Papers for July 15 with admiration and approval; and I needed only an excuse to prompt me to express to you the esteem with which I regard your example and counsel. I found it in the request for a missing line of an old Irish toast, with which you gallantly toast your wife (no doubt your toasts are all drunk with water).

If all husbands and wives would cultivate the self-sacrifice and consideration which you counsel and nobly practice, there would be no need for divorce laws, and homes would be happy, and life partners content. If all persons would consider what small things usually begin and complete the wrecking of their peace and the sundering of friendship's dearest ties, and how insignificant would be the little "giving up" of opinions or wishes in comparison to the great giving up of life's love and happiness, how joyful would be the sacrifice, which, after all, should be called by some other name, as true love *knows* no sacrifice! That which adds tenfold to one's joy should never be considered sacrifice. You and your sweet-tempered Mrs. Root have exemplified this to your own satisfaction I know.

It is worth so many times more than it costs! It bears "compound interest" at a high rate, and is absolutely a safe investment.

What a fine "building and loan" association could be run on this plan—building for life and eternity, with no mortgage on the home, and the interest all coming in instead of being paid out. D. L. CARLETON.
Indianapolis, Ind., July 22.

I noticed in one of the papers that three-fourths of the divorces come about, directly or indirectly, through strong drink. Well, there is another element that sometimes (but not always) comes along *with* strong drink. May God help us in *recognizing* Satan whenever he starts in to do the kind of work described in the following. It is an extract from quite a long letter; but the writer prefers to have his name withheld:

I have heard of some men who pretend to love their mothers to the exclusion of wife and children, but who spend their nights running around town visiting barrooms, and, perhaps, even places of worse repute, and who have formed an attachment for some woman whom they seem to think of continually, and steal off to whenever they can, or take out on some little racket of questionable propriety. Men in the professions and in business nowadays who have lady clerks, type-writers, or other female employees about them, seem to lay plans to make "conquests" among such women. Then, the *telephone* is another means of laying the foundation for worming themselves into the good graces of unwary girls. It is astonishing how easily oily words flow through a telephone wire into the ears, and, too often, into the hearts of silly girls who will allow themselves to be the vessels for such blandishments. Many an otherwise good girl has been ruined for life by listening to the sweet but devilish words whispered into her ears by means of this modern invention for the rapid communication of business.

I ought to know something about Satan's peculiar power in cases like the above; and I would most earnestly urge that every father, mother, brother, sister, or relative of any kind, should keep a careful watch on the young ladies who are employed in offices, especially where circumstances may render it possible for such things to happen. The writer of the above uses the word "conquests." I am sorry to say that in certain circles married men have in times past even *boasted* of their ability to turn the minds of silly young women. May God be praised, however, that just now public opinion is frowning on every thing of this kind, much as it frowns on men who drink; and this work surely kills both men and women for any thing that is good or useful, fully as much as if not worse than strong drink. God help us, each and all, not only to watch for but to rebuke and reprove every tendency toward such a state of affairs.

Now, here is one letter more that was sent me, just because of my request for that missing line:

> *Dear Bro. Root:*—For years I have been an interested reader of every thing I got hold of that came from your pen or was in any way connected with you or your publications. About eight years ago I sent for the pamphlet, "The New Water Cure." It was a Godsend to me. I mean that literally, for I firmly believe that God ordered that *that* publication should fall into my hands at just that time to preserve my health and possibly my life for my family who needed me so much. I am now, at 53, hale, hearty, and stronger for work than at any time for many years preceding the time I read and practiced the new water cure.
>
> But I did not sit down to write of myself merely. I want to thank you for your Home article for July 15. It touched my heart deeply, and brought tears to my eyes. Your experiences came near my own heart life.
>
> MRS. MARY H. MOORE.
>
> Highland Park, Ill., July 24.

I am glad to tell all of our readers that we still have those internal water-cure tracts to send out for free distribution. The years that have passed since they were printed have, perhaps, indicated that one should not rely too much on this remedy for constipation; but I am satisfied by my own experience that a thorough cleansing of the colon once in three or four weeks, especially when one has had his digestion out of order, is a very great help in preserving the health. We not only need to wash every part of the body externally, most thoroughly, about every so often, but sometimes it is still more necessary that the digestive apparatus be cleansed by using a great lot of pure water as hot as it can be borne comfortably. Taking a big drink of hot water the first thing when you get up in the morning, say a pint, or, still better, a quart, if you can stand it, is another way in which you can greatly aid in accomplishing the same result—washing thoroughly the human form divine, both inside and out, with pure soft water.

NOTES OF TRAVEL.

BY A. I. ROOT.

CAN A CHRISTIAN CONSISTENTLY TRAVEL WITH AN AUTOMOBILE?

> It is all right for you to have an automobile, and I am glad you have one and can enjoy it; but if you ever come to see us, please come on the railroad, and we will send to meet you there. When I read what you said about the editor of the *Farm Journal* I was just bound to speak. I know it is nice for you and your people, but it looks so hard for so many women and children to have to stay at home. There are not many down here in North Carolina, and I am so glad. There was one man who bought one, frightening every thing that saw it. He went back home and frightened his own horse, and caused him to run, and threw his wife out and hurt her. He sent it back, and every one rejoiced. The train is all right, for everybody knows *where* it is; and if the horse is afraid of it they can stay away at train time; but you don't know what time the auto will come, or *where*. If everybody were like you it would be different; but lots of people are like a girl I knew whose mother and aunt were sick, and wanted her to wait on them, but she would not, and said she didn't care who got sick just so she and her brother didn't. They are both dead now—died young, and such a death as she died was awful.
>
> May you live long and write much more, and when God is done with you here on earth may we meet in heaven. God bless and keep you and Mrs. Root.
>
> Arcola, N. C., July 25. SUBSCRIBER.

Dear friend, I thank you for your exceedingly kind letter, and especially for bringing out so prominently the fact that an automobile is a little different from the electric cars or steam-cars. I have thought of this, and prayed over it. I think a little incident of former years may help you to see it, at least somewhat, differently. Just before Mr. Calvert and our oldest daughter were married, they took a buggy-ride to see some of our relatives. They had a young horse that imagined he was going to be killed whenever a bicycle was even in sight. Their buggy was smashed up, they had to hire a rig to get home, and we sent a team to pick up the broken pieces of the vehicle. That was about twenty years ago, and before I had learned to ride a wheel. Of course, all Rootville was up in arms against this innovation on our old ways and customs. We would have sued the rider of the wheel for damages, perhaps, if we could, and we all loudly denounced bicycle-riders in general. A few months later, the whole of the Root family had become enthusiasts on the bicycle, your humble servant included. I confess it is a little surprising, even to myself, to realize that at the present time there is not a horse anywhere that pays any attention to a bicycle. Any one who would now declare bicycles should not be allowed on public highways would be laughed at. Now, is it not true, dear sister, that bicycles did make lots of trouble? and for a time it almost seemed as if it were not right and Christianlike to encourage their use because of runaways, etc. But just now this world could hardly get along without them; and horses, young and old, recognize them as a necessary part in the transportation of this great busy world of ours. Yesterday it seemed necessary for me to make half a dozen trips or more through our town in different directions; and as it was the principal day of our county fair the streets were full of vehicles. I ran among them in every direction without any trouble and without meeting any protest. In just one year not only the horses of our town, but well out into the country, have "caught on" to the idea that *some* wagons go all around everywhere without any horse to pull them.

Very much can be done by the owners of horses in the way of educating them to understand, and not object to the presence of automobiles. And I fear, my good friend, you are making a mistake in rejoicing that there are no more automobiles in your neighborhood. For a little while we shall all have to take great care, until this new creation is introduced; and perhaps it is the better way to go to the extreme of taking unnecessary care until this new method of locomotion adjusts itself to the surroundings. The advent of the electric car has caused many deaths; but, notwithstanding, the amount of good they do to humanity so far overbalances the evil that I have not yet heard of any town or city where they even talk about pulling up the rails and stopping the traffic. May God give us wisdom, and kind and neighborly feelings, while we *all* work together to avoid accidents.

A man who is pretty well acquainted with horses said he felt sure almost any horse could be trained in just a couple of days to overcome his fear of the auto; and I see by the auto magazines that hundreds of farmers tied their horses beside the road when that great string of autos passed on the way from New York to St. Louis. It was not only people who lived right along the line, but horses were brought from away back in the country. You see, the idea was that, even if they were disposed to be frightened when the first one came along, by the time seventy or eighty had passed it would be something of an old story. Now, almost daily, horse-owners bring their horses right up near my machine; and I know by experience it makes a very great difference if the man in the auto will talk to the horse, and say "soothing words" to him as one of the auto journals expressed it. When the horse sees that a live man has charge of the machine, and especially when he hears the man's voice, he quickly gains confidence. One of our own horses was at first disposed to be frightened; but now I pass right under their noses, and they pay no more attention to it than they would to a horse and buggy.

There is another point: When horses have not been worked for some time, and especially where they have been kept in a stable, when first taken out they are frisky, and seem to be hunting up some excuse to be frightened or to make believe they are frightened. They do it in a sort of playfulness. In such cases a firm hold on the lines, and perhaps a little judicious use of the whip, would cause them to give up their antics.

AUTOMOBILES ON COUNTRY ROADS.

Since the above was dictated I find that my good friend T. B. Terry has taken up the matter in the *Practical Farmer* for Sept. 10. I extract the following from his article:

> It is to us more than "a difference of opinion in regard to how a man shall travel," my dear Mr. Root. My wife has a good horse and carriage, and has been in the habit of driving anywhere about. But now she scarcely goes out at all, and when she does it is in constant terror for fear an auto will come along. There are many thousands of farmers' wives who suffer in the same way. I know this from word of mouth and from letters from different parts of the country where autos are used. To be sure, laws have been passed in Ohio to regulate the matter in a measure, but what do they amount to when one gets into trouble and the auto is gone before you can even look at it? We farmers furnish the land and keep up our roads. We do not object to any use of them that does not materially interfere with our safety and comfort. But do you think it morally right that our women in many cases must almost give up using the highways, in order that a comparatively few wealthy men from cities and large towns may take pleasure on them with horse-scaring machines? You do not seem to think of our side of the question, only of your legal rights. Kindly put yourself, and your wife and little grandchildren, in our places. It is very different in cities, where so much is going on and horses see such things so frequently that they soon become accustomed to them, and where there is police protection against high speed and the drivers can readily be caught. The "difference of opinion," my good friend, is as to whether many shall suffer in order that a few may take pleasure.

Many thanks, dear friend T., for presenting the matter not only fairly but so kindly as you do. If I said it was a matter of difference of opinion, I shall have to beg pardon, for it is more than that. Our good friend Atkinson, of the *Farm Journal*, frankly admits that automobiles are on the increase, and I believe you take the same thing for granted. Now, you two friends of mine, standing nearly at the head of two great agricultural journals, usually not only recognize all that is going on in the world, but I believe you generally take also a wise look in regard to what is coming. Is it not possible that Mrs. Terry, like Mrs. Root, will very soon ride in an automobile, because it is so much more convenient and may be cheaper than to ride behind a horse? My first good bicycle cost $150. A better one can now be purchased for a good deal less than $50 without the $100. With the tremendous manufacturing industry that is now started in automobiles, the price will come down rapidly. We have just received notice from one of the largest firms in the land, announcing a big reduction in price for the coming year. Other firms will follow. Now, friends Terry and Atkinson, what will you say when there are more automobiles than horses, providing the users of the automobiles, as a matter of course, contribute more to the roads than those who drive horses? I hardly need remind you that keeping roads in good repair for automobiles will be a small matter compared with the expense of making good the damage done by the hoofs of horses, and by iron wheels. Of course, I grant it is a little hard on the women and children just now; but such has been the case with the advent of every change in travel. Steam and electric cars have been a hindrance and annoyance to horse vehicles from the biginning up; but we all consented to put up with it. Friend Terry admits that the horses get used to them in towns. How long will it take to educate all the horses in the land in a like manner?* Nothing like

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*My good friend T., you can take that horse your wife drives, and teach him in a very little time so he will pay no more attention to the horseless carriage than to carriages drawn by horses; and may be your good wife (if she sets about it with the right kind of *faith*) will educate the horse quicker than you can. I was going to offer to go over your way and show you how easily it can the length of time it required for them to become acquainted with bicycles. The present great need is just now a Christian spirit, both with those who drive autos and horses. Yesterday a man with a one-horse wagon positively refused to give me an inch of the road. I turned out of the ruts and into the mudholes, and stalled my engine. I felt sorry that he should exhibit such a spirit, but I was not angry at all. I was so busy managing my machine I did not have a chance to say even a kind word to him. I may not be *exactly* right in this matter; but I am sure the great public, especially the progressive public, will agree that I am pretty nearly right. Of course, the future will have to decide largely whether automobiles are soon to outnumber horses or not. At one time it was feared by liverymen and others who used horses that electric cars would make horses a drug in the market; but just now the prices of horses are ruling about as high as ever; and is it not altogether likely, friends, that this world of ours is large enough for all of us, without very much jostling or very much reason for an unchristianlike spirit? May the kind Father help us to preserve a Christianlike spirit while we are receiving these great and wondrous gifts from his loving hand so thick and so fast.

SOMETHING FROM A MAN WHO DOES NOT OWN NOR RUN AN AUTOMOBILE.

Now I think it no more than fair to give the following from our old friend A. T. Cook, as it comes to hand just as this goes to the printers:

> *Friend Root:*—Many thanks for your auto article in GLEANINGS; thanks, also, for your writing to the *Farm Journal* as you did. I have none, but my niece has one, and so has my nephew, both Olds Runabouts. My niece has driven hers 2286 miles since May 15. She does the entire running, and takes care of it herself, and has had no accident of any sort. She has not spared it, but has driven it over bad roads and rocky mountain climbs.
>
> Please give us more auto articles. There are lots of autos about here. Five are owned in my own short village street, and only three horses. Quite a number of farmers already have autos. A. T. COOK.
>
> Hyde Park, N. Y., Sept. 5.

SUNDAY NEWSPAPERS AND RECENT INVENTIONS.

A few weeks ago one of our relatives handed me a Sunday daily published in Dayton, O. They did not give it to me on Sunday, because they felt sure, I presume, I would not read it, even if it was "all about flying-machines." I think I got hold of it on Monday morning. Well, this daily made the statement that *91* different air-ships were already on the ground at the St. Louis exposition, preparing to compete for the prize of 100,000. They even went so far as to give pictures and names of the more prominent ones, giving the exact date when each different machine came on the ground and was entered for the prize. As nearly as I can make out from the pictures and description they were all or nearly all kept in the air by means of a gas-balloon, and so of course they did not interest me very much. But at the close of that remarkable scientific(?) paper there was a statement somewhat like this: "Last, but not least, is the willow-twig flying-machine that comes from somewhere out west. It is made of light willow sticks and canvas, but flies like a bird, without any gas-bag to sustain it." Well, Mr. Calvert returned from the St. Louis exposition to-day, Aug. 25. I requested him, when he left home, to find out about the flying-machines. His report is that, although there is a big inclosure to be devoted to this department of science, there is at present *not a single flying-machine* on the grounds. Is this a fair illustration of the truthfulness of the average city Sunday daily? Are there people in our land who are willing to swap their dimes and nickels for this sort of news, and to support in idleness a systematic *gang* of *liars?* One does not need to suggest it is this class that has damaged bee-keeping by similar stories about the factories where they manufacture comb honey. Will not all honest men and women join me in shutting down on this sort of work? Tell the newsboys and tell the publishers that you can not encourage falsehoods in the printing-press any more than you can encourage lies from individuals; and I for one feel as if it would be a good thing to refuse either to buy or read Sunday papers altogether.

THE "ROASTED-CHESTNUT" POTATO.

On our Medina clay soil this potato that was hollow, every one, last season, is now not hollow at all, at least I have not found a hollow one. But the potatoes are not nearly done growing—in fact, they are the greenest and thriftiest of any variety of the 20 different kinds we have on our test-grounds. Up to this date, Sept. 7, they have not shown the least tendency to blight or die down. There is only one other variety that comes anywhere near them, and that is our old friend the Craig. Now, all this is very cheering; but in losing the hollows we have also lost the fine quality, for the quality at this stage of growth is just fair. The potato may get to be hard and brittle and of fine quality, as they were last year, when they come to ripen up; and if they do keep the quality up to that of last year, I shall place it at the head of all other potatoes as to quality, and power to resist blight. The yield so far is fair—perhaps as good as Carman No. 3. Our other potatoes have blighted more or less; in fact, the vines are dead and dry, with only few exceptions. The King of Michigan is, perhaps, ahead of any in quality, and in smoothness and beauty of shape, with fair yield.

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be done. But it would be a little ridiculous for me to undertake to teach a veteran like you any thing about horses. My faith, however, is perhaps greater than yours, because I see so many horses that were fractious at first get to view the horseless vehicle with utter indifference; and now we brush right under their very noses just exactly as you would with a vehicle drawn by horses. Yesterday I was invited to take a ride in a 20-horse-power Winton. The chauffeur who managed it used exactly the same tactics I do, and he passed vehicle after vehicle out in the country without troubling or incommoding anybody to any extent worth mentioning.

PAROID ROOFING

You will be surprised at the money you save and the satisfaction you get from

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—the roofing with quality and durability in it. Don't be persuaded to buy an imitation. Get the genuine. Contains no tar; slate color; any one can lay it in any kind of weather. Complete roofing kit in each roll.

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"Built to Run==
==and Does it."

Did you ever think how carefully and perfectly an Oldsmobile is built to stand all the hard knocks it gets? Things happen to it that would put it out of business if it had even ONE weak point. Over big jolts at high speed, through mud, water, and sand; sudden stops, quick starts, careless handling, etc., etc.

The Oldsmobile stands them all, because it is constructed for just this kind of handling. Every part is exactly right for the work it has to do—the mechanism is the simplest; there are no delicate adjustments to get out of order.

It took 20 years of gasoline-engine experience to know how to build the Oldsmobile. It is as near perfect as any automobile can be made.

Increased power, increased speed, increased size, increased strength and weight of all parts; increased gasoline and water capacity, wider seat, larger radiator. Hub brakes, safety starting-device (from the seat), three-inch double-tube tires—entire absence of packed joints.

The greatest "road efficiency" of any runabout, because of its 5x6 cylinder, 7 horse-power, 1100 lbs. weight.

Send for Oldsmobile catalog showing also Touring Runabout, $750; Light Tonneau, $950; Oldsmobile Delivery Wagon, $850.

Free demonstration by our nearest agent.

OLDSMOBILE--You see them wherever you go--They go wherever you see them.

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QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

Last winter was a severe test on bees, but **Quirin's Famous Leather-colored Italians** wintered on their summer stands, within a few miles of bleak Lake Erie.

Queens now ready to go by return mail.

Prices after July 1.

	1	6	12
Select	$ 75	$ 4 00	$ 7 00
Tested	1 00	5 00	9 00
Select tested	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight five-band breeders	5 00		

NOW IS THE TIME TO REQUEEN, and in doing so remember QUIRIN'S hardy Italians. We shall soon unite our nuclei for winter, so hurry in your orders.

Quirin-the-Queen-Breeder, Bellevue, O.

IT DOESN'T PAY

to keep those poor colonies when a young vigorous queen from the best honey-gathering stock given *now* may make them your *best colonies* next season. We believe we have as good bees as there are for *business.* We rear our queens carefully, rejecting poor cells or virgins; guarantee them good queens and purely mated, or replaced free on notice. Our testimonials will compare favorably with any. One queen, 75 cts.; six for $3.50; 12 for $6 50; select tested, $1.00; six for $5; tested, $1.00; select tested, $1 50; extra select tested, $2.00.

J. B. CASE, Port Orange, Florida.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $1.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

Queens by Return Mail

We are now breeding from three distinct strains, viz., Imported or leather color, Root's long-tongued or red clover strain, and our old strain of white-banded yellow Italians, or albinos. :: :: ::

August and September Prices

Un ested, each........$ .65; half doz. $3.75; doz. $ 7.00
Warranted, each..... .75; half doz. 4 25; doz. 8.00
Tested, each.. 1.25
Select tested, each...................................... 1.50

We have also a full line of bee-keepers' supplies including The A. I. Root Company's goods . . .
Root's Sections and Weed's Foundation a Specialty.
Send for our 32-page illustrated catalog. . . . .

W. W. Cary & Son, Lyonsville, Mass.

Virginia Queens

Italian queens secured by a cross, and years of careful selection. From red-clover queens and Superior stock obtained from W. Z. Hutchinson. I can furnish large vigorous untested queens 75 cts.; after June 15th, 60 cts.; tested queens, $1.00; after June 15th, 75 cents.

Write for discount on large orders.

CHAS. KOEPPEN,
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DISEASES OF BEES.

Black brood, pickled brood, and bee paralysis cured. Cat. of prices of Adel queens and a small booklet on queen-rearing sent free.

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150 TESTED RED CLOVER QUEENS,

three to five banders, fine queens, $1.00 each. Circular free. G. ROUTZAHN, Biglerville, Pa.

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One of the best papers of its class. Practical, illustrated, every issue interesting. Regular subscription price, 50 cents per year. If you are not now a subscriber,

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MOORE'S STRAIN OF ITALIANS

AS RED-CLOVER WORKERS.

L. C. Medkiff, Salem, N. J., says: "I bought an untested queen of you last year, and her bees have filled three comb-honey supers, and did not swarm, while thirteen out of the fifteen other colonies did not get more than half that amount

I have queens from six different breeders, and I class yours 100 per cent above them all. Your bees worked very strong on the first crop of red clover. I know they were yours, because I floured them with a dredge-box and watched the hive. They also worked strong on the second crop of red-clover and lima-bean blossoms."

Untested queens, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5.00; dozen, $9.00. Safe arrival and satisfaction guaranteed.

Send for descriptive circular showing why my queen-trade has grown so fast. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Key.

The Best Stock!

Twenty years' experience in rearing Italian queen bees, and producing honey on a large scale has taught me the value of the best stock, and what the best queens reared from that best stock mean to the honey-producer. I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then by crossing these different strains and selecting the best and breeding from them I have secured a strain of stock that is the equal of any for honey-gathering.

Delanson, New York, July 10, 1902.

MR. ROBEY Dear Sir: The queens that I bought of you two years ago were the finest lot, and the best honey-gatherers of any queens I ever had, and I have had over 1000 queens from the principal queen-breeders of the United States. E. W. ALEXANDER.

Warranted queens in any quantity, 60c. each. Safe delivery and satisfaction guaranteed or money refunded.

L. H. ROBEY Worthington, W. Va.

Poultry in the West.

Also Dogs and Pigeons, for Pleasure and Profit. Do you want to know about how they are bred on the great Pacific Coast? The

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brim full of good reading, handsomely illustrated, up-to-date, will tell you. Try it for a year. TRIAL subscriptions, one year, 50 cts. Bee culture and poultry-raising go well together.

FANCIERS' MONTHLY, San Jose, California.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To trade apiaries, for apiaries in Idaho or Colorado. T. WAALE, Sara, Wash.

WANTED.—Bulk comb and extracted honey. State grade and price. E. A. HEARN, Salisbury, Md.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods. O. H. HYATT, Shenandoah, Iowa.

WANTED.—Comb honey; state kind, quantity, and how put up. CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—Position by the year with an experienced bee-keeper. C. M. LEE, Rt. 2, Spring Grove, Minn.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange Parker Bro's hammerless shotgun, 12 gauge, factory price $65, good as new, for 10-frame Dovetailed or Danz. hives. Address JOSEPH W. LEIB, 235 Wilson Ave., Columbus, O.

WANTED.—A partner to furnish supplies and bare necessary expenses to take bees to Cuba this fall. I can furnish 50 swarms. I would go to Cuba. A. L. HINES, Independence, Iowa.

WANTED.—Quantity lots of gilt-edge, new, white-clover comb honey, plain or tall sections preferred. Also extracted honey in cans in exchange for second-hand cans. B. WALKER, Clyde, Ill.

WANTED.—To exchange 3 h. p. best gasoline engine and belt, Remington typewriter, pole-team harness, $\frac{3}{16}$-inch 12-foot steel rotary power screen (gravel, sand, crushed stone), for comb or extracted honey. A. G. MOREY, Legrange, Ill.

WANTED.—An experienced dairyman who likes to care for cows and make them do their best. Warm stable, cement floor, Bidwell stalls, water in every stall, three silos, 39 cows; milking hours, 4:30 A. M., 2:30 P. M. Wages, $300 per year, with house, garden, apples, pears, cherries, etc. If wife or any other member of family can milk, will pay more according to amount of milking they do. When answering this ad., give reference, also state number of members of family and their ages. I will give $5.00 to anybody who refers me to the man that I will employ. J. P. WATTS, Kerrmoor, Pa.

WANTED.—To exchange Columbia chainless bicycle, 22-inch nickel-steel drop-frame, 7-inch crank, 3⅝-inch combination pedals, 82 gear, 17-inch steel handle-bars, internal expander, sponge-rubber grips, Brown saddle, 1⅜-inch No. 80 Hartford single-tube tires, black enameled, gold stripe with nickel-plated trimmings, barrel hubs, tangent spokes, tool-bag, tools, lamp, etc., for high-grade type-writer, foot-power circular saw, Victor talking-machine, or offers. FRANK LACEY, 81 North St., Danbury, Ct.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana $1 00 per month; $10.00 per year. Daily, except Monday.

Situations Wanted.

WANTED.—Situation with a bee-keeper in Cuba or Jamaica, for six months or term of years. F. G. DENZINGER, Olean, N. Y.

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FOR SALE.—Clover and basswood honey in 60-lb. cans. Sample free. G. A. BLEECH, Jerome, Mich.

FOR SALE.—6000 pounds white comb honey, best offer gets it. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Barnes combined circular saw, practically new, cheap for cash. EARL N. EVERSON, Brilliant, Ohio.

FOR SALE.—Good untested Italian queens, to close out, 50c each; a few tested, 75c each. S. F. TREGO, Swedona, Ill.

FOR SALE.—Sweet-clover seed, 50 pounds or over, at 5 cts. per lb. Address JOSEPH SHAW, Strong City, Kan.

FOR SALE.—Fine extracted white clover and basswood honey, two new 60-lb. cans in a case, at 7½ cts. C. G. LUFT, Forest, O.

FOR SALE.—120 colonies of bees, and fixtures for extracted honey, and home; will invoice about $2000.00. Write me. D. S. JENKINS, Las Animas, Col.

FOR SALE.—I have golden Italian queens for sale at 50 cts. each, or $2.50 for six. Hybrids 25 cts. A. L. HINES, Independence, Iowa.

FOR SALE.—An 80-acre wheat farm in Cowley County, Kan. Price $1500. B. LOUISA HACKWORTH, Rockville, Bates Co., Mo.

FOR SALE.—Second-hand 60-lb. honey-cans. Good as new. Satisfaction guaranteed LEWIS C. & A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—80 colonies of Italians on Hoffman wired frames, nice straight combs. Good location on tide-water navigable river. No competition. Write for particulars. H. W. BASS, Rumford, Va.

FOR SALE.—200 colonies of bees in the famous "white-honey belt" of St. Lawrence County, New York. Want to reduce my colonies. Bees in good condition. W. L. COGGSHALL, West Groton, N. Y.

FOR SALE.—Finest quality extracted white-clover honey at 7½c per pound, in cases of one new 58-lb. can. Sample, 8c. R. & E. C. PORTER, Lewistown, Ill

FOR SALE.—Five-gallon square tin cans used for honey, at about half price of new cans. For prices etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

FOR SALE.—White-clover and buckwheat honey, comb and extracted; limited quantity, and good quality. Mail sample, 5c. W. L. COGGSHALL Groton, N. Y

FOR SALE.—500 colonies of bees in Root's 10-frame hives in fine condition. Will sell in lots of 50 or upward. Also fine 100-acre farm at a bargain. Write or call quick for full particulars. UDO TOEPPERWEIN, San Antonio, Tex.

FOR SALE.—900 colonies of bees in one lot, or 500 and 400 separately, located one to six miles from Montrose, Col., commanding one of the best alfalfa ranges in the West. Uncle Sam is now constructing the Gunnison tunnel to fully water the entire valley, which will make this the cream of all irrigated country. Addres J. S BRUCE, Montrose, Col.

For Sale.—Apiaries consisting of 500 colonies of bees; also, 1904 honey crop of 60,000 pounds of comb and extracted alfalfa honey. Address
DR. GEO. D. MITCHELL & Co.,
340 4th St., Ogden, Utah.

For Sale.—Queens! For the balance of season I will sell Italian queens from the very best honey-gathering strains. Untested, 50c. each; tested, 75c. each. W. J. FOREHAND, Fort Deposit, Ala.

FOR SALE. On account of not having room in my cellar to winter all the bees I have, I will, for the next 30 days, sell full colonies of pure Italians in nine-frame hives at $4.00 each. Hives are in good condition. In lots of five, will give one super with each colony. Safe arrival guaranteed. F. A. GRAY,
Redwood Falls, Minn.

FOR SALE.—Having sold my farm, I desire to close up my entire business, and offer for sale two fine bee locations with 500 colonies, near Santa Monica and Los Angeles. Most complete of any.
HERMAN LEHMANN, Santa Monica, Cal.

FOR SALE.—On account of my husband's death, I will sell cheap about 80 colonies of bees, hives, supplies, etc., all in good condition. Net proceeds a year were $450 to $500. MRS. WM. W. COMBS, Beauvue P. O.,
St. Marys Co., Md.

FOR SALE.—485 colonies of Italian bees, situated in five yards, located in one of the finest sweet-clover districts in the United States; also a big swamp near by which gives a big flow after sweet clover is gone. The hives are 10-frame L. Territory will support 200 colonies in yard. No disease. W. N. CANNON,
Greenville, Ala.

FOR SALE.—Near Thompsonville, in Benzie County, Mich., one of the best localities in the State; two acres of land, a good five-room house, workshop 16x24, 100 colonies of bees in double-walled hives, 100 extra double-walled hives, 50 single-walled hives, 250 supers, 200 winter cushions, Cowan extractor, uncapping-can, wax-extractor, a good horse, buggy, sleighs, tools, and other things too numerous to mention. I am selling these for a friend on account of poor health. This yard is located on the bank of the Little Benzie River, the best trout stream in Michigan. $800.00 cash will buy the outfit. Don't write unless you mean business. This advertisement will not appear again. GEO. E. HILTON,
Fremont, Mich.

Squab Book Free

Squabs are raised in one month, bring BIG PRICES. Eager market. Money-makers for poultrymen, farmers, women. Here is something WORTH LOOKING INTO. Send for our FREE BOOK, "How to Make Money with Squabs," and learn this rich industry. Address
PLYMOUTH ROCK SQUAB CO.,
289 Atlantic Ave., BOSTON, MASS.

Extension Axle Nuts

cure wabbles and make old buggies run like new. Sample, 35c, postpaid. *Agents wanted.*
Hardware Specialty Co., Box 55, Pontiac, Mich.

Convention Notice.

UNITED STATES HONEY EXHIBIT.

Brother Bee-keeper:—The National Bee-keepers' convention will be held Sept. 27-30, in St. Louis, in the Christian Endeavor Hotel. By special arrangement all bee-keepers are to board in the same house.

At my expense, at the convention I expect to have a honey display by means of a large map of each State and a shelf to hold 1-lb. square clear glass jars. Each State shelf will show every kind of honey the State produces. At one glance you can see in geographical order all kinds of honey. Each jar will be labeled, telling from what gathered, and by whose bees—a good way to advertise honey. I ask your assistance at once.

On a postal card, name the kinds of honey samples you can send me at once. I hope my shipping-bottles will reach me before your reply, so I can be ready to send, by return mail, shipping instructions. One hundred bee-keepers are helping me; $2.60 express on first package received from California.

Please answer by return mail, stating the kinds of honey you can furnish me.

Platteville, Wis. N. E. FRANCE.

Mr. Root:—Would you please call the attention of the members of the National to the Central Entertainment Bureau and its services? I stopped there myself, and found it a most excellent and respectable place, and every word true as they give it. The address is 4048 Cook Ave., St. Louis, Mo. Take 18th St. car going north from Union Station; transfer to Washington Ave. lines going west; get off at Sarah Street, and walk one block north to Cook Ave.

J. P. ROHLINGER, Linn Creek, Mo.

Aug. 22, 1904.

The South Texas Bee-keepers' Association will meet at the Court House, Beeville, Texas, Wednesday and Thursday, Oct. 19 and 20, 1904. All bee-keepers and others interested are invited to attend. No hotel bills to pay.
E. J. ATCHLEY, President,
L. W. BELL, Secretary,
Beeville, Tex.

The Western Illinois Bee-keepers' Association will meet at Galesburg, Tuesday, Sept. 20, in the county court-room at 10 A. M. All bee-keepers in vicinity are invited to be present. E. D. WOODS.

The Missouri State Bee-keepers' Association will meet in convention in St. Louis, Sept. 26, 1904, in the same hall to be used by the N. B. K. A. Further particulars to be announced later. Arrangements are being made by C. P. Dadant for our accommodations in connection with the National W. T. CARY,
Sec'y M. S. B. K. A.

Kind Words from our Customers.

Friend Root:—I have read your Home sermon with great interest. It couldn't be better, even if gotten up by a minister of the gospel. I have been acquainted with you only by reading GLEANINGS and the A B C book. I am only a small bee-keeper. I have 21 stands. My crop of honey is small this year—only 700 pounds.

Well, brother Root, I can safely call you a brother in the church of Christ. Oh, I wish there were more such as you are! I should very much like to meet you and have a good talk with you; and if you should ever come to Madison I should so much like to meet you! I have read your text several times, "The meek shall inherit the earth." Yes, the people of God shall dwell in the new Jerusalem which John saw coming down from God out of heaven, prepared as a bride adorned for her husband. Thank the Lord for such a glorious promise.

Arena, Wis., Sept. 5. O. GUNDERSON.

Dear Brother Root:—No doubt you will be surprised to get a letter of this kind from one you have never seen or heard of; but ever since I have been a reader of GLEANINGS I have been very much interested in reading your articles under the heading of Our Homes. I have grown to (if I may be permitted to use the expression) love you for the plain straightforward way you write, whether preaching Christ as our loving Savior, or condemning saloons and breweries as the root of (I might say) 95 per cent of the crime of our nation to-day. When I read or hear of some one who loves God with all his heart and soul, I feel just as if I should like to be with him, and stay with him all the time. It makes me think of the great gathering that is to be, when they shall come from the north and the south, and the east and the west, and shall sit down with Abraham and Isaac and Jacob in the kingdom of God, and we are to be made like unto our blessed Savior's most glorious body. Well, God has blessed you for giving yourself to do his work, and in the world to come he has promised life everlasting. I am going to ask you, if you ever come to Philadelphia, to come and see me. You will not be coming to a rich man's mansion, but you will get a welcome such as only true Christian people know how to give each other. LELAND C. DUNN.

Primos, Pa., Aug. 29.

GOODS IN SEASON.

Cases for marketing comb honey.
All kinds of packages for marketing extracted honey. . . .
Glass jars for canning fruit. . .
Bee-escapes for taking off honey.

Every thing the very best.

Standard-bred Italian Queens. Full line of the best Bee Books. . .

We yet have a full line of hives, sections, comb foundation, and every thing necessary for the bee-keeper. **Big discount on all goods for next season's use,** if ordered at once. Order now and save money, and be in time for next year. *Catalog Free.*

C. M. Scott & Co.,
1004 E. Washington St.,
Indianapolis, Ind.

NOW IS A GOOD TIME TO REQUEEN.

REPLACE all old wornout queens with young, vigorous, and healthy ones. We can supply such queens for 50c each, by return mail. Our strain of three-banded Italians are the bees for honey; try them. Send for price list, and see what others say. Untested queens 50c each. Tested $1.00.

J. W. K. SHAW & CO.,
LOREAUVILLE, Iberia Parish, LOUISIANA.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. LAWS, Beeville, Texas.

QUEENS! THE BEST can always be had at 75c each for untested; $4 25 for six; $8.00 per dozen. Tested $1.50 each. Best breeders $5 each. Safe arrival and satisfaction guaranteed. **The JENNIE ATCHLEY CO.,**
Box 18, Beeville, Bee Co., Tex.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

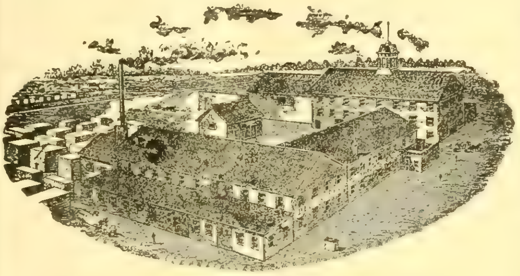
The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



KRETCHMER MANFG. CO.
Box 60, RED OAK. IOWA.

BEE - SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

I. J. Stringham, New York,

Keeps in stock a complete line of

Apiarian Supplies 1-lb. sq. Jars, with corks, $5.00 gross.
No. 25 sq. Jars, $5.75 gross. 12-oz. Jars (best seller) $5 gross.
Liberal Discount on more than one gross.

Apiaries--Glen Cove, L. I. **Salesroom--105 Park Place, N. Y.**

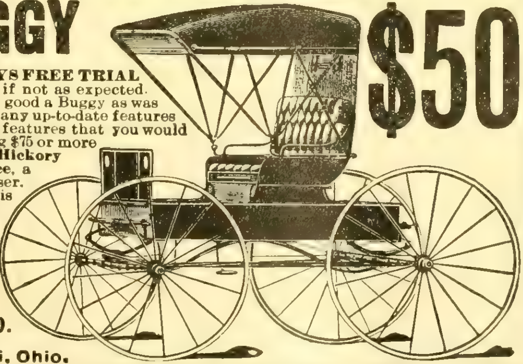
1904 Split Hickory Special

TOP BUGGY

$50

Is sent anywhere on **THIRTY DAYS FREE TRIAL** and may be returned without cost if not as expected. If kept the price is **$50.** This is as good a Buggy as was ever put out for the price. It has many up-to-date features that recommend it to buggy users, features that you would only expect to find on buggies costing $75 or more. **Guarantee:** With every **1904 Split Hickory** goes our **binding 2 years guarantee**, a genuine protection to the purchaser. **The Hundred Points of Merit** in this Buggy are told in detail in our **Free 186-page Catalog of Split Hickory Vehicles and Harness.** This will be mailed you free the day your request reaches us. Send for it to-day. **NOTE—We manufacture a full line of high grade Harness, sold direct to the user at wholesale price.**

THE OHIO CARRIAGE MFG. CO.
(H. C. Phelps, President,)
3820 **Sixth Street, Cincinnati, Ohio.**



----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

During this month (September) I will offer a ***Special Discount of 7 per cent for Cash orders***, for goods wanted for next season's use. During October the discount will be 6 per cent. These discounts apply to orders for hives, sections, foundation, etc., but not for honey-packages or shipping-cases, or goods for immediate use. One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer.*

HONEY

I have on hand a large stock of extracted honey in 60-lb. cans, white-clover or water-white alfalfa. A single can of either at 8½c per pound. Two cans in a box at 8c per pound. Bee-keepers having a demand which exceeds their supply can here avail themselves of an opportunity.

Have you noticed what the leading Bee-keepers of Indiana have been saying about my line of goods? Here is another sample letter. . . . . .

Alexandria, Ind.

Walter S. Pouder, Indianapolis, Ind.

Dear Sir:—I have been dealing constantly with you for 15 years, and in all that time have not had a single cause for complaint. Your goods come promptly every time. In 1897 and 1903, both good honey years, and in the rush, when a single day's delay meant a loss in dollars to me, yet order after order was filled promptly and correctly. To me the name Pouder is a synonym for promptness in business. I can recommend you to those who need supplies in time for the harvest. Truly yours, Evan E. Edwards.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

Special Notices By Our Business Manager

IMPROVEMENTS.

We have just completed over twenty-five thousand square feet of metal roofing over a section of our lumber-yard to protect dry lumber from the weather, and insure a sufficient supply to work on without opening any piles where the exposed ends of boards have been wet with snow or rain. We do not use a kiln for drying lumber, greatly preferring air-dried stock. We expect to eliminate all further trouble from shrinking of material after it is worked. Portions of the track are also covered, so that cars may be loaded and unloaded while the weather is bad.

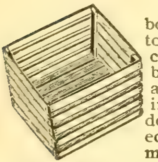
GOOD SECOND-HAND CANS.

We have on hand upward of three hundred boxes of second-hand 60-lb. cans, two in a case, in excellent condition. Most of them have been used but once, and are bright, inside and out. We offer them in ten-box lots at 45 cts. a box; 25 boxes or more at 40 cts. a box. We can ship also from Hollidays Cove, W. Va., where we have a part of the stock. We have also some more cans, not in quite as good condition, but which would be good enough for low-grade honey. We offer these in ten-box lots or over at 30 cts. a box. To distinguish from the others, order these as third-class cans.

A B C OF BEE CULTURE.

Our stock of the old edition of the A B C is exhausted, and the new edition will not be completed till December at the earliest. We should like to hear from dealers and others having extra copies of the old edition which they would like to dispose of. We shall need a good many copies to supply the demand for orders that do not want to wait for the new edition. Do not send the extra copies you may have to spare, but write us, telling us how many, and whether of the last edition, and unused. If we can use them we will give shipping instructions.

BUSHEL BOXES.



The season is at hand when bushel boxes are needed for handling potatoes and other farm crops. The accompanying cut shows our all-slatted box which has been used for years, and is a most popular box. It is 16 inches long by 13½ wide and 12½ deep, inside measure, holding a heaped bushel when level full. One box may be nested inside of two when empty, so they can be handled in bunches of three. As packed, there are 14 in a bunch — 2 nailed up and the other 12 in flat, with nails included. We usually make them with oak corner-posts; and, so made, the price is $1.90 per crate of 14. We have quite a stock on hand, packed ready for shipment, of all-basswood slats, no oak corners. We offer these, to close them out, at $1.75 per crate; ten-crate lots, 5 per cent discount.

AIKEN HONEY-BAGS.

We did not include these bags in our catalog this year because we wanted to see them more generally tested in different sections of the country, and proven a satisfactory package everywhere before doing so. We are prepared to supply them, and have arranged for a 1-lb. size in addition to the four other sizes sold heretofore. We are now supplied with all sizes.

1-LB. SIZE, 3½x5½.

100	$ .65	1000	$5 50
500	3.00	5000 @	5.25

2-LB. SIZE, 5x7½.		5-LB. SIZE, 7x10.	
100	$ .80	100	$ 1.20
500	3 75	500	5.50
1000	7 00	1000	10 50
5000 @	6.60	5000 @	10 00

3½-lb. SIZE, 6x9½		10-lb. SIZE, 10x10	
100	$1.00	100	1.50
500	4 75	500	7 00
1000	8 75	1000	13 50
5000 @	8 25	5000 @	13 00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts
Lots of 250	50 cts
Lots of 500	.75 cts
Lots of 1000	$1.00

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names $3.00 etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2 00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

Special Notices by A. I. Root.

SPARK'S EARLIANA TOMATO.

The above tomato gives ripe fruit earlier than any other variety—in fact, sooner, I believe, than we ever had ripe tomatoes before from the time of sowing of the seed, and I am glad to be able to add that it is one of the handsomest and smoothest tomatoes for one so early. It is also exceedingly prolific. A dozen plants are giving us more tomatoes than we can use, and quite a lot for the neighbors. The seed came from E. C. Green & Son, Medina, Ohio.

THE CULTIVATION OF MUSHROOMS.

Farmers' Bulletin No. 204, of the U. S. Department of Agriculture, should be sent for by every one interested in growing mushrooms. It is quite up to date, and gives all the tricks and secrets known in the business. It tells just why so many fail and only a few succeed. From what experience I have had, I am sure that, with the help of this bulletin, any one who takes the pains can grow mushrooms, either for the market or for private use. Aside from its value to the mushroom-grower, it is interesting from a scientific point of view; in fact, I shall always look at the mushroom with more interest, and with a different interest, than I have ever had before since reading the bulletin. There are 24 pages and 10 illustrations.

OUR COUNTRY ROADS; WHO FURNISHES THE LAND AND KEEPS THEM IN REPAIR?

On page 846 friend Terry says, "We farmers furnish the land, and keep up our roads." I am not prepared to dispute this. It may be true. If it is true, I think it is high time that the rest of the world who are not farmers, but who use the roads, should help bear this burden. Nay, more: Our separate counties, States, or perhaps the whole United States, should pay back to the farmers the price of the land and labor they have already given. This matter has already been touched on by some of our agricultural periodicals; and one paper of pretty good authority said the farmers had a right to demand pay for every telephone-pole set along the highway in front of their farms. The whole world is just now pushing ahead mightily for better roads; and I think the owners of automobiles should have a large share of the praise. But we want these beautiful new roads, that are coming, on a safe and solid foundation financially as well as mechanically.

RUBBER STAMPS.

Stamp your name and address on your letters. You will save yourself, as well as others, lots of trouble. A two-line stamp costs but **25c.** Many styles and prices given in our rubber-stamp catalog. Send for it to-day. A stamp is neater than a label on sections, etc.

THE A. I. ROOT COMPANY. Medina. Ohio.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in
BEE-KEEPERS' SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

Dittmer's Foundation
RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

GUS. DITTMER, - - - AUGUSTA, WISCONSIN.

BINGHAM
SELF CLEANING
BEE SMOKER

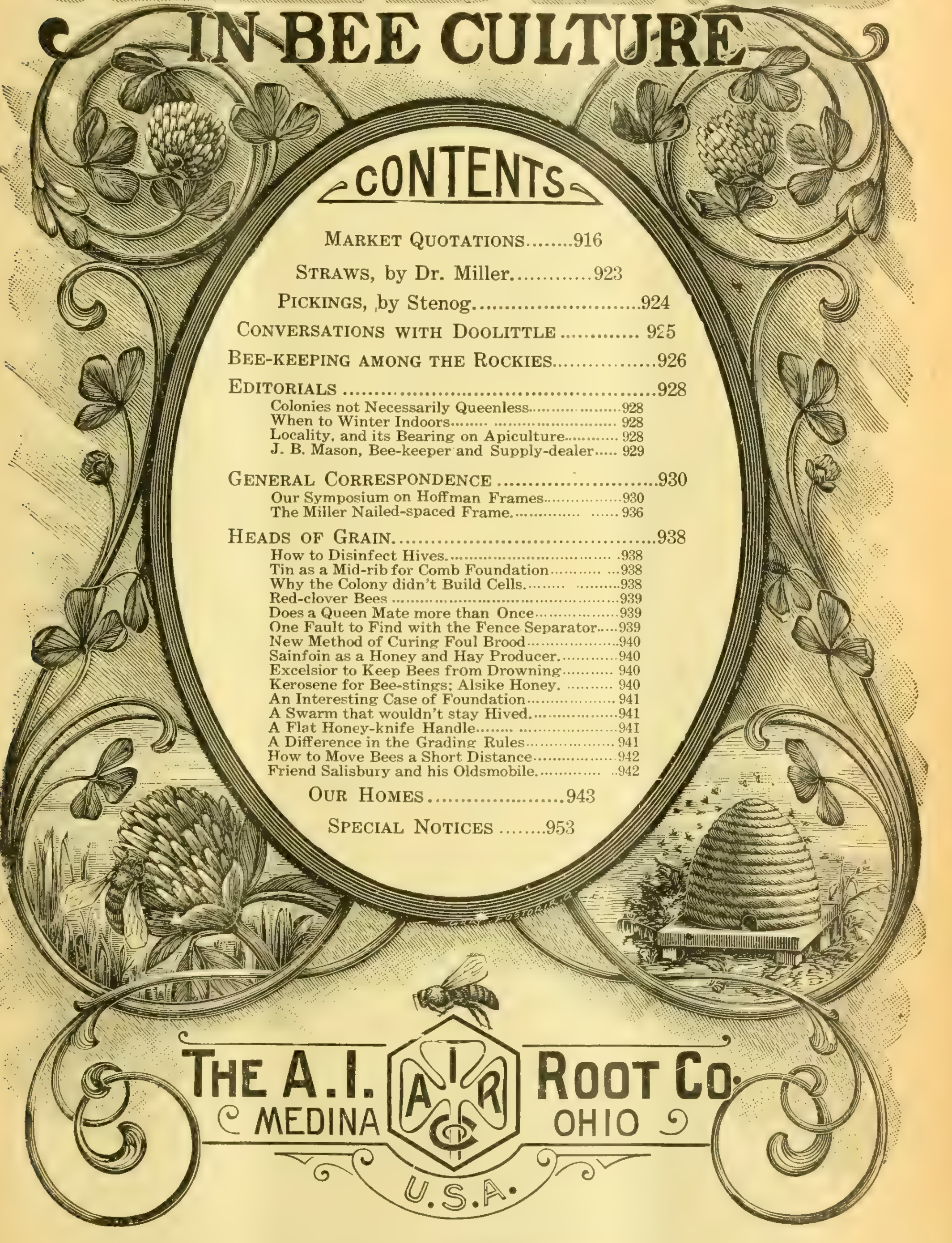
If You Want a Smoker
That goes without Puffing—Clean, Durable, and Handy—

Oldest, newest, and embracing all the improvements and inventions made in smokers, send card for circular to

T. F. BINGHAM,
FARWELL, MICH.

Volume XXXII. OCTOBER 1, 1904. Number 19

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

ENTERED AT THE POSTOFFICE, AT MEDINA, OHIO, AS SECOND-CLASS MATTER.

GLASS

for

Extracted Honey!

We have a car load of glass jelly tumblers coming about Sept. 1st.

Get our prices; we can save you money.

Write at once giving sizes wanted so that they may come in the car.

LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

6 Per Cent Discount for October.

George E. Hilton, Fremont, Mich.

DISCOUNTS

For the New Season---for Cash Orders.

During October, 6 per cent.
" November, 5 "
" December, 4 "

And you get Root's Goods. Tell us what you want, and we will tell you what it will cost. Our Catalog for the asking.

M. H. Hunt & Son, Bell Branch, Mich.

C. H. W. Weber,
Headquarters for
Bee-Supplies
Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

* * *

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Queens Now Ready to Supply by Return Mail; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above. Prices for Untested, during June, one, .75; six, $4.00; twelve, $7.50.

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,
Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

Milwaukee.—The present outlook is good for an increased demand for good quality honey, either comb or extracted, and the surplus stock of old crop is working off at a fair rate, and we expect to make a fair result on shipments to our shippers. The receipts of new crop have been quite moderate thus far, but we now would encourage shippers to send on good quality stock as we think the early sales will be favorable. We now quote: Fancy old-crop sections, 10@12; fancy new-crop sections, 13@14. Extracted, in bbls., cans, and pails, white, 7½@8; dark, 6@6½. Beeswax, 25@28.

A. V. Bishop & Co.,
Sept. 22. Milwaukee, Wis.

Cincinnati.—There is an improvement in the honey market so far as extracted honey is concerned. The demand has increased considerably, but the supply is limited, owing to the fact that bee-keepers in general are making a mistake in holding their crop for better prices. We quote amber extracted in barrels, at 5½@6; white clover, in barrels and cans, at 7@8½, according to quality. The comb-honey situation is badly demoralized, being aught but encouraging. Quote, fancy white clover honey at 14@15. Beeswax, 26@28.

The Fred W. Muth Co.,
Sept. 15. No. 51 Walnut St., Cincinnati, O.

St. Louis.—Since our last our honey market is in better condition. There is a fair demand for fancy and choice new comb honey from 13 to 14c. We quote as follows: Fancy white comb, 14; A No. 1, 13; No. 1, 11@12. Nos. 2 and 3 are not in demand, and may sell from 8@9. Extracted, in five-gallon cans, if choice new, 5½@6½. Southern honey in barrels, from 4@4½. Beeswax, 28.

R. Hartmann & Co.,
Sept. 24. 14 So. Second St., St. Louis, Mo.

Toronto.—Honey is selling fairly brisk here. Prices are as follows: Extracted, 7½@8 wholesale; comb from $1.50 to $2.00 per doz.; very select fancy comb, $2.25, but very little selling at that price.

E. Grainger & Co.,
Sept. 26. Toronto, Can.

Boston.—Comb honey continues to come in slowly, while the demand is increasing. Fancy white will bring 16@17; No. 1, 15@16, and No. 2, 14. The old honey has been practically cleaned up, there being one lot of any quantity left. We look to see our present market maintained right through the season.

Blake, Scott & Lee,
Sept. 22. 31 and 33 Commercial St., Boston, Mass.

Philadelphia.—The market for comb honey is very much unsettled at the present time. Quite a few poor lots have been sent in early, and have sold for low prices. Very little fancy has arrived in this market thus far. We quote: Fancy, 16@17; No. 1, 14@15; amber, 14. Extracted fancy white, 8@9; amber, 7@8; dark, 6. Beeswax, 28. We are producers of honey, and do not handle on commission.

Wm. A. Selser,
Sept. 22. 10 Vine St., Philadelphia, Pa.

Chicago.—The market is now showing more activity. Some small lots of fancy white clover have been sold at 14c. per pound, No. 1 ranging at 12@13; very little call for other grades. Extracted, white, brings 6@7; amber, 5@6, according to quality, flavor, and style of package. Beeswax, 28@30.

R. A. Burnett & Co.,
Sept. 23. 199 South Water St., Chicago, Ill.

Schenectady.—Weather conditions are favorable, and honey is moving freely. We quote fancy white in paper cartons, 16; A No. 1, 14@15; No. 1, 13@14; No. 2, 12@13; No. 3, 11@12; buckwheat, 11@13. Extracted, white, 6@7; dark, 5½@6 in kegs and bbls. Some styles of sections sell much better than others with us. Write before sending and let us know what you have.

Chas. McCulloch,
Sept. 21. Schenectady, N. Y.

Cincinnati.—Comb honey is now coming in more freely, and prices if anything have moderated a little. The sales made and prices obtained were for No. 1 fancy water-white comb, 13½@15½; No. 2, 12½@14. Extracted is sold as follows: White clover, 6½@8; amber in barrels, 5¼@5½; in cans, 6@6½. Beeswax, 27.

C. H. W. Weber,
Sept. 21. Cincinnati, O.

Kansas City.—Market on comb honey is quite active at $2.75 per case, for fancy white stock. Extracted rather slow at 6½@7. Beeswax in good demand at 30 cts. We look for the demand for extracted to pick up considerably with cooler weather.

C. C. Clemons & Co.,
Sept. 22. Kansas City, Mo.

New York.—Comb honey is now arriving quite freely, and fancy stock finds ready sale at 15; No. 1 at 13@14; No. 2 at 11@12. No buckwheat on the market as yet. Extracted honey is fair demand at unchanged prices. Beeswax dull at 27@28.

Hildreth & Segelken,
Sept. 24. 265-7 Greenwich St., New York.

San Francisco.—Honey—new crop comb, per lb., 10@13. Extracted, water white, 6; light amber, 5½; dark amber, 4½@5. Beeswax, per lb., 28@29.

Ernest Schaeffle,
Sept. 13. Murphys, Cal.

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TOLEDO.—The market on comb honey at present is rather quiet, as it seems to be flooded with fruit, but we look for prices to be better within the next few weeks. Fancy white clover brings in a retail way, 14½@15; No. 1, 13½@14; with very little demand for amber. Extracted white clover in barrels brings 6½; in cans, 7; amber in barrels brings 5½; in cans, 6. Beeswax, 26@28.

GRIGGS BROS.,
Sept. 23. Toledo, Ohio.

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I. J. STRINGHAM, 105 Park Place, N. Y. City.

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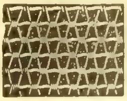

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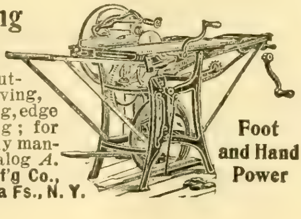

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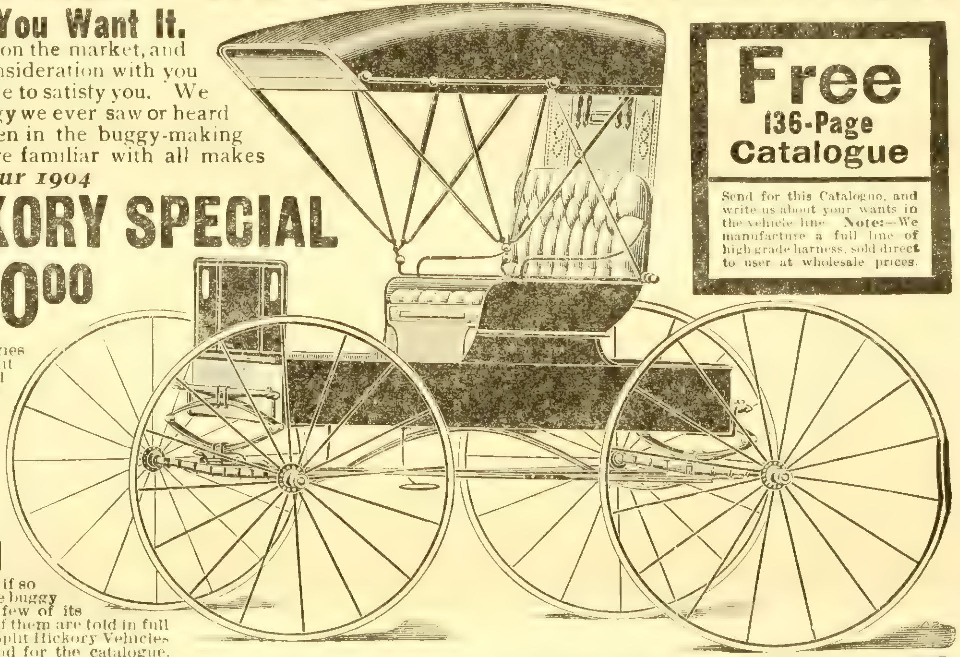

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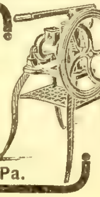

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Vol. XXXII. OCT. 1, 1904. No 19

Stray Straws

By Dr. C. C. Miller.

JOKE ON W. K. Morrison, p. 892. Right after saying the papers get mixed when talking about pigeons and dogs, he gets mixed himself when talking about the Dr. Walkers. Friend Morrison, it was *Emma* that started the row in *The Ladies' Home Journal*, not Dr. Mary of the bifurcated garments.

IF YOU WANT to make an easy job of scouring your silverware (this is for the sisterhood), try this: Take an aluminum dish, put in it a suds made with ivory soap, and in this boil your articles of silverware. That's the way it's done at our house, and it's away ahead of any sort of scouring—the things come out as bright as new, only it's something of a job to clean the aluminum dish.

REPLYING to S. LaMont's question about young queens swarming, p. 897, there may be a difference in locality and season, and perhaps more in bees. In my own case, if a young queen only three or four weeks old begins laying in a colony after the opening of the honey harvest, there being no unsealed brood in the hive when she begins to lay, I have no further anxiety about that colony swarming that season.

KING-BIRDS pronounced not guilty because no dead bees in stomach, p. 888. But there has been very positive testimony that they do kill them. They just mash 'em and spit 'em out, so of course no dead bees would be found in stomach. [Yes; since the item referred to was published there have been reports from various sources showing that the king-birds in some cases may be a serious menace to queen-rearing operations. In some yards, at least, it may be advisable to use a shotgun if many queens would be reared.—ED.]

THANKS, friend A. I., for giving us that poem, "Come in the evening or come in the morning," p. 898. I read it to Mrs. Miller, and she said, in a half-meditative way, "If there was a little more of that nowadays, there wouldn't be so many divorces, would there?" But say, friend Root, if you like that sort of thing—and I'm sure I do—the old Scotch songs ought just to suit you. I'd like to sing 'em to you for half an hour.

"IF THE new queen has acquired the scent of the bees of the hive," etc., p. 886. Where does that scent originate? Don't know just where I got the idea, but I always supposed that the queen was the one that carried the perfumery-bottle. Have I got to unlearn that? [Yes and no. Whether the queen may carry the scent-bottle, I think that we can be reasonably certain that she must acquire the general scent of the colony; otherwise she is regarded as an intruder and is treated accordingly.—ED]

VERY INTERESTING is that article of Dr. E. F. Phillips, page 846, and it seems quite reasonable to believe that young bees do not go afield because they can not see. Yet it must not be ignored that very young bees, under stress, have been reported as doing field work. In my own experience I had one such case. An imported queen was shut in a hive with absolutely not a worker present, but with just-emerging worker brood. Five days later the entrance was opened, and in a short time the five-day youngsters returned with loads of pollen. [We have had other reports that young bees will go to the field very early; indeed, we have one in hand now that is not yet published. Whether this militates against Dr. Phillips' theory or observations, I can not say.—ED.]

A PLAIN flat board suits J. A. Green best for a hive-cover, with two stones to keep it flat when it obstinately refuses to stay flat, p. 885. Same thing here, only I want a hollow place filled with wind in the center of the cover, the grain of the wood above and below running in opposite directions—cooler than a solid board in hot weather, and warmer in cold weather. And next time Editor Root sees them he'll tell you they stay flat without compulsion. [I am rather of the opinion that, if your double covers were subjected to the climate of Colorado, they would pull all to pieces. The arid regions seem to require that all hives be made of as few pieces as possible, and this is doubtless the reason why the flat cover, made as it is of only three pieces—one board and two ends—is preferred by friend Green.—Ed.]

White clover all over the fields at Medina, p. 885. Yes, but do bees ever gather from it to amount to any thing in September? Don't here. Seems out o' season. [The mention of white clover on page 885, to which you refer, was not made because bees gather honey from it in September, but because of a young and promising growth that makes prospects next June and July so favorable. When we know more about this science of white clover and its peculiarities I think we shall be able to tell almost a year in advance whether there will be a white-clover crop. A season of drouth, particularly if it goes clear up until the fall, is apt to kill off all the young clover, and, no matter what the next season will be, there is liable to be a shortage of honey from this source. I apprehend that there would have been a larger crop of clover honey this summer if there had been more of a growth of young plants last fall.—Ed.]

Reports about cross bees raise the question whether there is not a difference in years as to crossness. I never had so much trouble with cross bees as last season, notwithstanding the fact that it was the best honey-year I ever knew. They attacked people at an unusual distance from the hives, and that, too, when no one was disturbing them. I hardly think it was deterioration on the part of the bees, No. 112 was voted the crossest in the Wilson apiary, and its character hardly ought to have changed, for its queen was four years old, yet the colony had not in previous years distinguished itself for viciousness. [I believe you are right. Bees are crosser some seasons than others. Conditions of the atmosphere, sudden cessation of the honey-flow, especially if the honey be of an aromatic or strongly flavored character, will sometimes cause the bees to be very cross. Some seasons bees have seemed to be crosser here with us, but such crossness I have usually traced to a little infusion of the five-banded blood.—Ed.]

Mellifica or mellifera? Mellifica may be the more appropriate, but mellifera has the right of way because of priority. The name first given must be the one used. Why? Probably largely out of deference to the man who first gives the name. But in this case would it not be showing more deference to Linnæus to respect his wishes in regard to the matter? In substance he said, "I made a mistake when I gave the name mellifera; and I now ask that it be named mellifica." Dr. Buttel is perhaps as great a stickler for scientific accuracy as our scientists on this side the water, and he urges that mellifica be used. It will be just like a certain editor to fling back at me, "Why, you're the very one who urged that mellifera should be used!" Yes, but I know more now than I then knew. I didn't know then that Linnæus himself changed to the more appropriate name, mellifica. [I had supposed that scientific men agreed perfectly that *mellifera* was the only and the right name. It is a little difficult to change a name after it once gets started, and if there could be any good reason for keeping the old name, *mellifica*, the publishers of bee literature would prefer to retain it.—Ed.]

Pickings from Our Neighbors' Fields

By "Stenog."

In comparing the relative merits of bee poison with that from wasps, Mr. Wathelet, editor of *Le Rucher Belge*, says, "It can not be that the poisons of these two insects are identical. Several days ago in seizing a small wasp that was trying to enter a hive, I was stung on the finger. The pain was very great. I rubbed the wound to get the poison out, but the pain would not abate. An hour after, the finger was greatly swollen and painful. For three days I could not bend it. I have received thousands of stings from bees since I have been in the bee-keeping business, but I never before felt such pain. I should rather have fifty stings from bees than one from a wasp. Ten minutes after being stung by bees I do not know that I have been stung; but for eight days I felt the sting of that wasp. No, the sting of our little pets is not the same as that of the malicious wasp; and many serious accidents that have been attributed to bees have been due entirely to their enemies, the wasps."

The greater severity of the pain may be due to the fact that the wasp, being larger than the bee, and much stronger, secretes a larger quantity of its peculiar etiquette, and unloads it deeper under the skin. It is to be doubted whether a chemical analysis would determine whether this or that is bee or wasp venom. At all events, we hope Mr. Wathelet's finger is now fully recovered, for he is a very interesting writer.

* * *

According to the *British Bee Journal*, the bee-keepers of England have been having a honey show in London. One of the exhibitors, Mr. W. Woodloy, has some very pertinent things to say regarding such displays as a means of finding a market for honey; and although such large markets as London are not to be found everywhere, the experience of Mr. W. is good for all. I quote a few lines:

> I was very sorry to find that two tables, large enough to take a dozen or more trophies, had been set apart in

the large hall, and only four exhibits staged thereon. Surely bee-keepers failed to realize the opportunity these large shows have given individual bee-keepers of establishing a market for their produce. The honey-buyers of large firms attend these exhibitions, hoping to secure a supply, not only for their immediate requirements, but a continued supply for the season so long as honey is in demand; and I myself may affirm that section honey in the comb is in demand at all seasons of the year, when it can be had in good quality, and preserved in liquid condition in the combs. That has been my experience for many years past. I have secured regular customers, and we send off consignments of such sections every week throughout the year. It may be asked how I obtained these customers. My reply is: When I took up modern bee-keeping I put in an appearance on the show-bench at South Kensington, and trade began to flow in. This was a quarter of a century ago, and I still supply the same firms to-day. My "trophy" at the Confectioners' Show this week was sold two months ago (or, rather, was ordered in advance) to one of my oldest customers, whom I almost look on as friends after so many years of honorable dealing. To others who produce honey, and have difficulty in finding a market, I say, "Go and do likewise." London is a big place, and requires a large quantity of food of all kinds every day. I do hope our bee-keepers will pay a visit to the exhibition, and see not only the British section but also the grand exhibit staged by the Canadian Government, among which is a large parcel of section honey; and, what is of greater interest to them, is the fact that, I was told, an English firm had bought all the honey staged before the show was opened! Here we see the value of enterprise on the one part, and the breadth of London's requirements on the other.

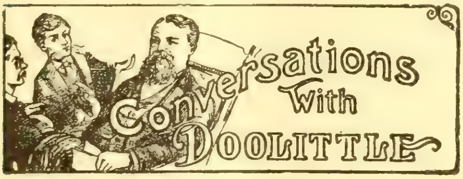
Probably three-fourths of London's inhabitants never taste honey.

* * *

If any of the readers of GLEANINGS can make use of an Italian bee-journal we will mail one free. We will also send one printed in Spanish, Dutch, Flemish, Danish, Swedish, Bohemian, or Esthonian as long as we receive the present supply.

* * *

In writing for the press it is desirable on the part of the printers to have the work done with a pen and ink instead of a lead-pencil. Before mailing the article, let some of the family read it aloud to you in order to supply the missing words.



LARGE HIVES AND NO SWARMING.

"What do you think of the idea a neighbor advanced to me yesterday?"

"How can I tell until I know what that idea was?"

"I did not tell you, did I? Well, it was this: He said that, if I would use large hives, I would have large colonies when working for comb honey, with no swarming. If that is a fact, would it not be well for us to drop all of our former notions regarding the contraction of the brood-nest, when working for comb honey, and give all colonies a great big hive, and so let the bees take care of themselves very largely?"

"You know, friend Jones, that I have been the advocate of a brood-chamber as small as or smaller than nearly any one else, when working for comb honey, the same holding only nine Gallup frames."

"Yes, I am familiar with this."

"Those nine Gallup frames give a capacity about the same as 6¾ Langstroth frames would; and from a brood-nest of that capacity I secured an average yield of 100 pounds of comb honey from each colony for eleven years in succession during the later seventies and the early eighties—a record which has rarely if ever been excelled, covering that term of years."

"I believe that is right."

"Now, while that is so, I am free to confess that, without doubt, more labor is required in rightly managing such hives than is needed in the management of large hives. But with me it has always seemed that, from the extra amount of honey obtained, I always secured enough to pay fully for the extra labor expended; and, if so, could the plea of letting the bees take care of themselves enter into the problem?"

"I had hardly thought of that."

"The question, it seems to me, is, which will give the best returns for the amount of labor expended? and not how little labor is it possible to run an apiary with and secure any returns at all?"

"Then you do not think as good returns can be secured with the large hives with little labor?"

"That is right. But let us look a little into that matter of large hives giving large colonies with no desire to swarm, and another claim put forth by some—that swarms from the large hives are so much larger than those from the small hives. I believe there is something overlooked here; for, with those nine-frame Gallup hives, I have had fully as little swarming as I have had with the ten-frame Langstroth hives, and the average of the swarms was not materially different as to size in either case."

"I hardly see why that should be so."

"I am free to admit that, were each placed side by side, with no sections on, the ten-frame L. hives would probably be later in swarming, and send out larger swarms; but no one working on the contraction plan treats his colonies in that way."

"He would be a strange bee-keeper if he did."

"Then we have that, with the small hive or brood-chamber, the sections are put on as soon as the honey-flow commences, and the brood-combs are manipulated till the whole are solid full of brood; and when in this shape, if any honey is stored, it must go into the sections, for there is no other place for it to go. Is this as you understand it?"

"Very nearly."

"Thus started early in the sections, the bees become accustomed to their surroundings, and these fully occupied combs of brood entertain the best queen to her full capacity as to egg-laying; and, if we have made no mistake, how could a larger hive give any larger colonies? Large hives do not give large colonies beyond *any* hive which gives the queen room for *her full* capacity. Am I right here?"

"I can see no flaw in that assertion."

"If the queen has all the vacant cell room her prolificness requires, more room is only a damage to our crop of comb honey; for in the finding of too many vacant cells in the brood-chamber at the beginning of the honey harvest comes an 'accustoment' to the brood-chamber for storing honey, instead of the sections, and thus the queen is crowded upon with honey, instead of said honey going into the sections; and with restricted room for her eggs comes discontent, and from this discontent comes the desire, and from the desire comes swarming, the very thing that we are told we shall not have if we will only use large hives."

"I wish my neighbor could hear your argument. Perhaps he could give as good arguments on his side. I don't know enough. I can only say that it looks reasonable."

"Remember we are looking at the matter from the comb-honey standpoint, or honey in sections, not extracted honey."

"But you do have larger hives, do you not?"

"Yes. Some fifteen to seventeen years ago I was persuaded to buy of a farmer, living five miles from me, his bees, as he did not wish to keep them longer, and with the bees he gave me the privilege of allowing them to remain where they were for a few pounds of honey each year. These bees were in the ten-frame L. hives, and I have kept them in those hives ever since, and at the same place, and thus I have had a chance to know about the workings of these hives as compared with the nine-frame Gallup hives of my home yard."

"How do they compare?"

"The result has been that I can, by giving plenty of section room, hold these colonies at the outyard back from swarming about a week later, on an average, than where the nine Gallup frames are used; but this out-apiary is no nearer being a non-swarming apiary than my home yard, and, in fact, I often consider them more determined to swarm than those are here; but the swarming comes a little later in the season."

"Do you consider this little later swarming of any benefit for comb-honey production?"

"This being held back a week in swarming has quite a bearing upon the problem of comb-honey production, from my present standpoint; for when colonies are managed on the 'shook' plan of swarming, as given in the February 1st number of GLEANINGS of this year, this holding-back puts them in just the right position to have the swarming done up so they can take advantage of the honey harvest when it comes, with the largest possible working force, with no desire to swarm after the manipulation."

"But all this requires work."

"Yes, some work; but no more work than we are well paid for. One thing I find, no matter what hive is used, or how many frames that hive contains, within the bounds of reason in securing a good crop of section honey, either way, toward large or small brood-chambers, a given amount of labor *must* be performed, so that the idea of letting the bees take care of themselves is nearly or quite a myth, if we expect to reap any great success from our bees. This no-labor part, and that of putting more colonies into the field, has been harped on so much of late that it has become a sort of bugbear, and a desire seems to have sprung up for a 'holding of the pot to catch the porridge' sort of apiculture, unworthy of the best attainments. 'In the sweat of thy face shalt thou eat bread' brings the highest joy that is attained in this life. Is it not to the one who has labored and toiled patiently, day after day, till at last the problem worked upon has been fully conquered and solved, that the greatest satisfaction comes?"

BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

What an all-devouring appetite is that of friend Adelsbach, of the *Western Bee Journal!* Wonder whose turn it will be next.

◆

Extracted honey that has already granulated too much to run at all may be made to run quite freely by a thorough stirring.

◆

Back in Illinois I seldom found it of any benefit to put the honey-knife in water, either hot or cold. When I did, cold water was just as good as hot. But when extracting Colorado alfalfa honey, hot water is decidedly better than cold, even in hot weather.

◆

It is claimed by those who think it unnecessary to use excluding zinc between the brood-chamber and the extracting-combs that the honey can readily be extracted from combs containing unsealed brood without injuring or throwing out the brood. This is largely true in the East, but not here. I had to extract from only four or five combs containing brood, and I found it a matter of difficulty, requiring both time and skill to get the honey out without throwing out a large proportion of the unsealed brood. It can be done satisfactorily only in the hottest weather.

◆

The big tank for extracted honey is all right; but those who claim that honey put into such a tank needs no straining are "way off" under certain circumstances. My honey was strained through coarse cheese-cloth before putting it into the tank; then after standing some time the top of the tank was carefully skimmed. But on reheating the honey in jars filled from this tank, a number of specks of comb made their appearance on top of nearly every jar. The trouble was with the thick Colorado honey. Not being a very large producer of extracted honey, the tank was some time in being filled. As honey was poured in at intervals, the minute specks on top were carried down into the honey, which was too thick to allow them all to get back to the top. If the honey had not been strained I think there would have been many more of them.

CLOSING UP THE SEASON.

As the honey season draws to a close, the question of how much more room to give to bees becomes an important one. They may not finish a whole super, and unfinished sections are an expensive nuisance. C. M. Foss solves the difficulty by simply leaving out the two outer rows of sections, placing a division-board next to the inner rows. The bees have free access to spaces on each side; but as the sections are supplied with full sheets of foundation, and there is nothing of the kind outside, they very seldom build any comb there, though they sometimes congregate there in considerable numbers. I do not like to give empty sections too near the end of the season, preferring to finish the season with extracting-combs. When I give sections at such a time, though, I generally place one or more rows of finished or nearly finished sections on each side of the super. The honey selected for this purpose is such as would grade only No. 2, so it will be little damaged by being on the hive a little longer, especially in the outside rows of the super.

NUCLEI FOR MATING QUEENS.

My first trial of the small "Swarthmore" nuclei for queen-mating was not very successful, only one laying queen being secured from a lot of seven. On the second trial I got ten queens from eleven nuclei, and since then I have had about as good success as from ordinary nuclei. I used the plan outlined by W. H. Laws in the March *Review*, my mating-boxes holding one frame 5⅛×8⅜. Two of these frames just fit inside of one of my brood-frames, so that they can be used in an ordinary brood-chamber with very little trouble at any time it is desired. I did not give brood to any of them and no feeding was done, though there was a light flow of honey all the time. Each comb was supplied with what I supposed was plenty of honey under the circumstances; but in many cases it proved not enough, as it was consumed at a surprising rate. In some cases it was quietly robbed out, being carried back to the old home. I found it desirable to confine the bees to the mating-box for two or three days before releasing them, and it was apparently of advantage to have the queen several days old before she was released.

PROPOLIS.

Judging from the references to it in the bee-journals, one would suppose it to be the common belief that propolis is a substance of uniform source, composition, and character. As a matter of fact, since propolis is gathered, and not secreted like beeswax, it varies widely in its qualities, almost as much so as honey, according to the source from which it is gathered. If we will bear this fact in mind we shall avoid much misunderstanding.

As an illustration, the editor of the *Review* announced some time ago that lava soap would remove propolis from the hands. One of the largest dealers in bee-keepers' supplies, on the authority of this, advertised this soap in his catalog. Important, if true. But lava soap unaided will not remove the brand of propolis that *my* bees gather. On the other hand, there are localities less than fifteen miles away where the propolis can be readily washed from the hands with any good soap and hot water.

I usually get it off my hands by soaping them well, then pouring on a little aqua ammonia, which, in connection with the soap, takes it off readily.

Another good way, not quite so pleasant, but easier on the skin, is to rub the hands with kerosene, then use soap. You may not need these things, or they may not work with you. If they do not, remember that there is more in "locality" than some people are willing to admit.

What ever became of all the devices for cleaning the propolis off from sections by machinery that occupied so much space in the bee-journals several years ago? Most of them would probably be of some use in putting an extra polish on sections when the propolis was cold and brittle, but they were of no use when it was soft and sticky, and a very little honey on the outside of the section soon put them out of commission.

Now we have a scheme for cleaning the propolis off from sections by rubbing them on a piece of coarse wire cloth stretched tightly over a strong frame. Perhaps I ought not to condemn the plan without having tried it, but I am afraid it would be of little use unless the propolis is cold and brittle. In this country, at least, most of the sections must be cleaned before the propolis is in really good condition to scrape.

OVERSTOCKING.

To my mind, one of the most mischievous doctrines that have ever been brought out in a bee-journal is that which argues that there is little danger of overstocking a locality with bees, and that one might as well keep four or five hundred colonies in a place as a fourth that number. It is true that there are localities where this would be good advice; but for one that would be helped by following such advice, I believe there are a hundred who would be harmed. And the worst of it is, those who are harmed most may not he able to help themselves at all in the matter, but are at the mercy of those who thoughtlessly take such doctrine for sound sense.

It is a difficult matter to tell when a field is overstocked. A location may be good enough, during the height of the honey-flow, to support a thousand colonies with ease; yet when the flow begins to fall off a little there will not be enough honey to go around. Times will come when nearly all the honey the field affords is consumed in brood-rearing. In times of scarcity the bees will be consuming more than they can gather. Especially in the spring there will not be enough of either honey or pollen to enable brood-rearing to be carried on as it should be. Heavy feeding will be necessary at times to supplement the lack of natural sources of supply, and in the end it may be found that the location that, at times, was good enough for a thousand colonies, will not support, for an average term of years, more than 100 colonies with the greatest economy and profit.

My own experience may be interesting, and perhaps shed a little light on the subject. When I came here the location was plainly capable of supporting profitably many more bees than were in it; but as my bees increased in numbers I took advantage of a vacated location to establish an out-apiary of sixty colonies only two miles away from home. It was not as far away as I should have liked; but locations are scarce here, and it was better than nothing. That season nearly every bee-keeper in the neighborhood doubled the number of his colonies, some even more than that. I decided to move out more bees and start another apiary; but before I had my arrangements completed, several new apiaries were started in my immediate neighborhood. It seemed like poor business policy to move my bees out to let them come in, so I kept all my bees at home, with the exception of the one apiary of 60 colonies which I had been obliged to move nearer home, so that it was now only 1¾ miles away, though I felt pretty sure that the home location was badly overstocked. Now for results. The out-apiary, though well within the field of the home apiary, according to most authorities, and having the same stock of bees in the same hives, and with exactly the same management, averaged nearly double the yield of honey per hive that those at home gave. This experience taught me several things. First, that the profitable range of bee-flight may be much less than is commonly supposed. Second, it was very evident that the home location had more bees than it could profitably support. Now, according to many who have written on the subject, these people had a perfect right to bring more bees into this locality.

All the bee-keepers in the neighborhood own their homes, and none of the apiaries lately established have been large ones. There is no question as to the legal rights of all, and yet the number of colonies in the neighborhood must be reduced or nobody can make as much money from bees as he ought to. Let's hear from Dr. Miller.

Editorial
By E. R. Root.

By the time this journal is going out to its readers the great St. Louis convention will have just closed its sessions. I will endeavor to bring back short sketches of the discussions.

The *Review* editor, in his capacity as foul-brood inspector, says he sees all kinds of hives and fixtures. One thing that he has been able to notice is that wide and deep top-bars "will prevent at least three-fourths of the combs that would otherwise be built."

The *Western Bee Journal* has absorbed another bee-paper, the *Southland Queen*. Mr. Atchley, the publisher, will be retained as one of the writers. The *Journal* shows evidence of permanency—something that bee-papers on the Pacific coast have lacked. There is a large field for a Western bee-journal, and we wish the present one abundant success.

COLONIES NOT NECESSARILY QUEENLESS.

Every year we get a great lot of letters saying that colonies are queenless because there are no eggs nor brood in the hive. Beginners especially need to be reminded that average queens, especially if they be six months or more old, will taper off in egg-laying during August, and probably stop altogether in September unless they are fed or there is a fall flow of honey. A little careful search will often reveal the queen, although she will look very much smaller than she did in the height of the season, and to the novice she looks much like a worker-bee.

WHEN TO WINTER INDOORS AND WHEN TO WINTER OUTDOORS.

The question as to whether it will be wise to winter in the cellar or outdoors will depend on conditions. A cellar should not be used if the temperature can not be kept from going below 40; and under no circumstances should one use the indoor method if the temperature outdoors does not go much below freezing, and the bees have an opportunity to fly once in two or three weeks. Continued zero weather outdoors for a month at a time with almost no warm spells requires the indoor method with uniform indoor temperature of about 45 degrees F. If the repository warms up to 60 degrees much ventilation will be required.

LOCALITY, AND ITS BEARING ON APICULTURAL TEACHINGS.

In this issue, in the department of Bee-keeping among the Rockies, will be seen several instances showing how locality affects teachings and practices current among bee-keepers. For example, in some places there is no advantage in heating a honey-knife in hot water. In other places it greatly facilitates the work.

Again, it is shown that lava soap will remove the propolis found in one locality but not that from another. But I had not seen any references in the bee-papers that seemed to indicate that propolis was a substance of uniform source. All the text-books, so far as I know, teach the exact opposite.

J. B. MASON, THE BEE-KEEPER AND SUPPLY-DEALER AT MECHANIC FALLS, MAINE.

THERE is generally some one person in a locality who has the distinction of being the leading bee-man. To him lesser lights go for instruction and supplies. The man who holds this distinction for the southwestern part of Maine—indeed, I might say for the whole State, and perhaps a great part of New England—is J. B. Mason, of Mechanic Falls. For many years he has made bee-keeping his exclusive business, and lately he has added to it the keeping of supplies.

Many suppose that the State of Maine, located as it is in the extreme northeastern part of the country, is too cold for bees; indeed, it was bitterly cold when I called there last winter, soon after the holidays. As I rode through that snowy country I wondered if it were possible for bees to live through such intense cold. But one can not be with friend Mason long before he is convinced that bee-keeping in that bleak country—bleak only in winters—does thrive.

Mr. Mason is pleasantly situated on the Grand Trunk Railway at Mechanic Falls, in the southwestern part of the State. On arriving at the station, not having announced the exact date of my visit, I made up my mind to hunt up a liveryman to take me over to Mr. Mason's place; but the driver who was taking me up town to the hotel told me he had just seen Mason, for everybody seemed to know him, and he thought I would find him in one of the stores, and I did.

I took several photos during my brief visit; but as they had a "froze-up look" about them I asked our friend to have others taken in the summer, and these are the ones here shown.

His combined shop and store is on the edge of the town, as shown in one of the illustrations. He has just loaded up a wagon full of supplies, and is about to deliver them at the depot. He himself will be seen standing in the porch in the front of the building. On the same road, and about two miles out of town, he has a very comfortable residence situated on a rise of ground near a beautiful ravine. The residence is shown, with the barn in the rear.

Mr. Mason, besides doing considerable business in the way of selling supplies, makes a specialty of selling bees. In the view of the bee-yard he is shown as shaking a lot of bees through a tunnel into a wire-cloth package. He tells me that these packages of bees are taken from a full colony that has a laying queen, and placed in the cellar for about six hours. During this time they become conscious of their utter queenlessness; and, being broodless and combless as well as queenless, they are in a condition to accept any queen that may be dropped in among them from a mailing-cage, for this is exactly what Mr. Mason does. He has shipped out many packages of bees having a queen that has been dropped in among them without the formality of an introduction, and he says it is very rare indeed to get a report where the queen has been killed. As she is liable to die any way in some cases, it could not be proven definitely that the bees were responsible for her demise in the rare cases reported.

Mr. Mason is a man of pleasant appearance, and, notwithstanding he has been so long engaged on the general subject of bees, he can talk as enthusiastically about them as he could when he first began to love them. His wife and family seem to understand thoroughly all the details of his business, and enter heartily into all his plans.

DOES PROHIBITION IN MAINE PROHIBIT?

There, I came near forgetting a very important fact that I gleaned. As I rode across the border I had forgotten all about the fact that Maine was a prohibition State. At the stations I looked in vain for saloons with their familiar signs and the characteristic crowd of loafers, as I am in the habit of doing when going through country new to me. I began to wonder. Then it flashed through me that saloons were outlawed in Maine, as they ought to be everywhere. On arriving at Portland late at night I went to one of the leading hotels. I looked all over the place, but there was no indication whatever of a bar. Then I went out on the street, and there seemed to be an entire absence of the rough element that one sees where there are two or three saloons in a block. There were restaurants, of course, but there were no screens and no crowds hanging around as there is around some of our Ohio speak-easies.

I have heard many a time that "prohibition does not prohibit in Maine;" of how liquor is dealt out on the sly; but I did not see any evidence of such dealings, although I am free to admit that there are probably places where "the stuff" is kept, and where the law is violated. The fact is, no law is so absolutely iron-clad and so rigidly enforced that the provisions of it can not be violated to some slight extent. But if *all laws were as well enforced as the prohibition law of Maine* I should feel that the millennium was nigh. I tell you it was a real pleasure to go through the towns and cities of that State. Alack the day when it should ever follow the example of its sister State of Vermont! I hardly think it ever will; for I understand the good people of that commonwealth are thoroughly sick of their bad bargain.

GENERAL CORRESPONDENCE.

Our Symposium on Hoffman Frames.

Is this Frame Adapted to the Needs of Every-day Bee-keepers? Conflicting Opinions from Experts.

[We have received quite a number of communications on this subject from various subscribers; and, desiring to put all of them together, we have held them till now. The reader is, therefore, in position to get a birdseye view of the whole discussion. As Mr. J. A. Green's article came first, we place it at the beginning.—Ed.]

DEFECTS OF THE HOFFMAN AS NOW MADE.

Can They Be Overcome? The Hoffman-frame Division-board or Follower Not Satisfactory.

BY J. A. GREEN.

Your editorial on page 641 gives a rather wrong impression in regard to my position on the Hoffman-frame question in saying that I believe the frame has inherent defects that might be remedied. In my article in the June *Review* I said, "Its faults are not inherent or unavoidable." That is, the principle of the Hoffman frame is all right, and it is not such a bad frame if it is properly used. In the hands of a careful man who understands the principle on which it works, and will always handle them strictly in accordance with that principle, the Hoffman frame, even as it is made now, will give very satisfactory results in most localities.

The trouble is that most bee-keepers are not careful, and will not handle the frame as it must be handled to give good results. Because of this the Hoffman frame is not as well adapted to general use as a frame that will not suffer as much from neglect. That, in a few words, is my position in regard to the Hoffman frame.

I have opened during the present season, as bee-inspector, over two thousand hives having Hoffman frames. It is not too much to say that not ten per cent of them had been kept in proper condition for easy handling. Do you wonder that I should like to see the Hoffman frame supplanted by something that is better suited to the methods of the average bee-keeper? Of the hives with plain hanging frames, there was scarcely one that was not in far better shape for easy handling than the average Hoffman.

The chief difficulty with the Hoffman frame is that difficulty of getting out the first frame. The principle of the frame requires that, at the end of each manipulation, the frames be all crowded close together at one side of the hive. A following-board is crowded up against them, leaving a bee-space between it and the side of the hive. To remove the frames, pry back the follower and remove it, which gives room to get out the first frame. The theory is excellent, and in practice it works very well when things are new, if proper care is taken each time to keep the frames crowded together. But the average bee-keeper will not do this. He forgets to crowd up the frames. Or perhaps the follower is a little askew, so that, in the very limited space given it, one corner of it touches the side of the hive, or comes near enough to it so that the bees fasten it. Or, as often happens (I might say usually, in the case of old hives), the follower is attached to the first comb by brace-combs or because of a hive out of level. The next time he tries to get it out it can be pulled to pieces before it can be removed. The follower no longer serves its purpose, but has become a nuisance, which is generally torn out and dispensed with or left as it is without any attempt to make use of it. I have inspected large apiaries in every hive of which the follower had been purposely left out. For a little while this works better; but as propolis and brace-combs accumulate, the difficulties of handling increase, until getting out the first frame is often an exasperating problem.

You complain that I do not indicate what construction of follower would be better. There are three ways in which the follower could be made more substantial. The first is by using longer nails; and the second is by using more nails in making it up. The third (and best) way is by making it of thicker material. It would not so easily get out of shape; it would not be so easily broken, and it would hold nails better and permit of longer nails. It may seem strange to some that I should lay the fault of insufficient nailing to the manufacturer; but I believe the manufacturers generally send out nails for making them up, and so are at fault if the nails they send are not large enough or numerous enough to nail them up properly. Indeed, I am not sure but the followers are already made up. If this is not the case, it may be that the bee-keeper does not use the right nails, or use all that are sent. However that may be, I do not believe I have ever seen a follower sent out with a Dovetailed hive that was what I call properly nailed, the nails being too few and altogether too small for the service required of them. I might remark parenthetically that the same thing might be said of the frames, or at least of most of them. Many a time I have pulled the top-bar off nearly every frame in the hive before I could get one out, and the bottoms come off if they are in the least stuck to the floor. It is possible that there might be an advantage in twisting a stout piece of annealed wire, about like "stovepipe" wire, around the ends of the follower. This would certainly make it less liable to pull to pieces.

You say it is not possible at this late date to make the hives wider, so as to allow for a thicker follower or for more space back of it. It seems to me that it is never too late to correct a mistake, and it likewise seems to me that you have made a serious mistake which makes an immense amount of trouble, and detracts largely from the value of your hive in allowing so little room for follower and bee-space. A quarter of an inch added to the width of the hive would probably be enough to correct both of these faults, and I can not conceive of any good reason why this should not be done, except that it might make necessary expensive changes in your machinery or methods of manufacture. To the bee-keeper, even when supers or parts of hives are to be used interchangeably with those of older manufacture, it would make no practical difference, except the almost imperceptible one of looks. If the hive is wider than the super, or *vice versa*, by only ⅛ inch on each side, very few would ever notice it unless their attention were specially called to the matter, and it would not make a difference of an ounce of honey in the year's crop, while the saving in time and vexation might be very great.

The necessary additional space might be secured by making the frames a trifle narrower, or by making the sides of the hives thinner, but I do not recommend either of these plans.

I do not know that I have ever seen any of your latest pattern of followers; but candor compels me to say that all of the hives I have been able to recognize as of your manufacture have contained the very flimsiest followers I have seen. As to followers in ten-frame hives, there are but few of such hives here. I remember one lot of about 35 ten-frame hives that had followers in. As they had been used only one season, they were handled with but little trouble, though I advised the owner to leave them out.

It not infrequently happens that the follower is wedged tight against the frames, and wedges and all propolized so thoroughly that it is almost impossible to get any thing out.

I do not think that there is an excessive amount of propolis used here — certainly not more than I have been accustomed to elsewhere; and the fact that many, myself included, get along all right with frames having close-fitting ends, shows that propolis has nothing to do with my condemnation of the Hoffman frame. I have said that the trouble is not so much with the frame as with the way it is used. I should also include with this the way it is put together. The Hoffman frame should be nailed up so that one V edge is on each side of the frame. Of those who pay any attention at all to the way they nail them up, perhaps the majority put both sharp edges on the same side. When the proper way is explained to them, these latter say that they expect always to put them back the same way. If they do this, of course it would not make much difference; but they are very liable to get turned around sometimes. Whenever two sharp edges come together they are very liable to slide past each other, which increases the difficulty of handling.

The other eccentricities which inspectors sometimes come across, such as putting frames together without any nails at all, should perhaps not be considered the fault of the frame, though they make more trouble with this frame than with some others.

In my criticisms of the Hoffman frame I have tried to be perfectly fair, and at the same time tell the whole truth, for I feel that that is what you want and what the interests of bee-keepers require.

Grand Junction, Col.

WHY THE HOFFMAN FRAME IS POPULAR IN CUBA.

It would be quite interesting to know all the reasons why in Cuba mostly all kinds of frames have been gradually discarded by the bee-keepers to give place to the Hoffman, which, with very few exceptions, we might say is now exclusively used in that island.

I have used almost all kinds of frames, and finally decided to adopt entirely the Hoffman for use in my apiaries, which formerly I used to manage personally. Now being engaged in other business I have to rely almost entirely for the management on outside help under the management of an apiarist. In Cuba it is quite a difficult matter to obtain competent help to work with bees; and especially at extracting time we have to make use of help that is not familiar with the handling of frames. All apiarists should know how difficult it is for such help to space properly the frames back into the hive after they have been extracted. When you have to employ such help, or for a beginner, I do not know of any frame better than the Hoffman, as one might say that it helps itself to be spaced right. Unless this helper is very careless he is sure to place back and space right the frames if the apiarist has been careful to show him practically once before how to do it. It certainly is a satisfaction to know that all the frames are properly spaced in the hives.

A great deal of attention is being given to the inconvenience of the thick top-bar of the Hoffman frame. I have read with interest the different opinions of the several writers on this subject; and from my personal opinion, based on my past experience in the handling of the different kinds of frames, I give credit to the thick top-bar for causing fewer burr-combs. Before I adopted the Hoffman frame I used largely the old-style thin top-bar, and my experience was that in no time the bees invariably had the top-bars of the frames in the lower story so tightly fastened to the bottom-bars of the frames in the upper story that a great many bottom-bars broke off when the frames were being taken out for extracting. This was such a nuisance, and caused so much inconvenience, that I would have considered advisable the change of the bottom-bar into a thicker or stronger one. Since the adoption of the Hoffman frame I have no cause for this complaint, although the bottom-bar in the Hoffman frame is not thicker than was the one on the old-style frame I used before. The thickness of the top and bottom bars of the actual Hoffman frames taken together does not really take any more space than the thin top-bar with a thicker bottom-bar would have taken. This last change, if I had made it, would not, probably, have remedied the building of burr-combs between the frames of the lower and upper stories.

I would not claim that the Hoffman frames will prevent burr-combs entirely, nor that the reason first given is of the same value to the small or intelligent apiarist that works his bees himself without any assistance, as it is to me.

In shipping bees I do not know of any other frame that will equal the Hoffman. In Cuba, where the country roads and conveyances are not of the best, the moving of bees is quite an item to be considered, especially as most bee-keepers, sooner or later, with the fast increase they obtain, have to consider the establishing of apiaries or the selling of bees. Prevention of increase in Cuba soon becomes a problem, and it is not unusual to see an intelligent apiarist increase from a comparatively small number of hives up to the thousand mark.

In the last four years I have shipped to different points of the island over three thousand nuclei besides a large number of full colonies of bees, either by steamer, rail, or by carts over rough roads; and in case of either strong colonies or nuclei I have always attained the best result with the Hoffman frame. It requires less work and time to prepare the same for shipment, all that is needed being a small strip nailed across the projecting ends of the frames, and it will remain fastened and better secured than any other frame I have used. In fact, I have not had a single comb broken on Hoffman frames, while in the same shipment I must say some combs in other kinds of frames broke.

I notice that some objection is being raised to the Hoffman frames on account of propolis; but we do not find this objection in Cuba; in fact, apiarists using well-made hives are not really much bothered with propolis. The bees seem to put all their energy into gathering propolis to cover cracks and crevices in the hives; but we do not find any trouble of this kind with the frames. F. H. de Beche.

THINKS IT THE BEST FRAME NOW IN USE.

Mr. Root:—If I differ with any of your correspondents I give you fair warning that *they* must give up, for I can't. I presume I am punching up a hornet's nest, but nevertheless let us have the plain solid facts.

In 1893 a number of your subscribers, among whom was one Dr. C. C. Miller, advised that the top-bar of the Hoffman frame be made 1⅛ inches wide, and full ⅞ inch deep at the sides. Why was that? Simply because a deeper top-bar gave better results by the exclusion of burr-combs, and cut a great figure in lessening brace-combs, or combs built between the top-bars. This was, in my judgment, a step in the right direction—that of making the most correct bee-space in which the bees are the least liable to build comb or deposit propolis.

I am sincere when I say that, in my opinion, all things combined, the Hoffman frame is by far the best frame now offered to the bee-keeping fraternity. I note in the *Bee-keepers' Review* that Mr. Williamson says experience fails to apply when it comes to a movable frame. For rapid handling, my experience proves, too, that the Hoffman frame is the best one for rapid handling in pairs of 2, 3, and 4. Mr. Abbott also says that I pronounced the Hoffman frame a humbug ten years ago. If Mr. Abbott is correct in his condemnation of them, then I have to confess that the rank and file of the bee-keepers prefer to be humbugged. It is the strongest frame we have, and destroys the least number of bees, and kills fewer queens while manipulating them.

As for hired help in the apiary, I should like to call attention to the fact that we have to hire all kinds of help to do the work with 5000 colonies of bees; and what kind of spacing would take place with frames not self-spacing? With the Hoffman, one can not do bad spacing. I believe if those who condemn the Hoffman frame so strongly would use nine frames in a ten-frame hive, with two plain division-boards, all trouble would flee like the dew before the sun.

Section-cases come off almost as clean, and free from brace-combs, as when put on. The hive can be quickly arranged for shipment with the Hoffman frame—no nails to run the uncapping-knife against. All in all, the Hoffman frame has many advantages over the disadvantages of self-spacing frames. Give us cold facts, and let us not improve this good frame backward, as have been the bee-smokers. A few more such improvements on smokers as we have had of late, and we practical bee-keepers will be obliged to resort to the old turkey-wing and rag. C. E. Woodward.

Guanabana, Cuba.

HOFFMAN FRAMES NOT STRONG ENOUGH.

On page 694 is the following: "By the way, Hooper Brothers use nothing but Hoffman frames for extracting. Indeed, they consider them far superior to any other. It is a mistaken notion that such frames are not adapted to hot countries, or wide spacing to get fat combs for extracting. The fact that some of the largest producers in the world use them shows that they are not so difficult to handle as those who have not used them extensively suppose."

In answer to their style of reasoning, that, because a man is a large producer, he knows just what is best, or the best way to do a thing, I will tell something that happened in Cuba.

Extracting was going on at a ranch. One

of the big bee-keepers from the States, who was on a visit to the island, was there. He came out into the yard, and saw a hive opened. The combs were fat and heavy. They were loosened, caught up by the ends, given a shake, and placed in the super on the wheelbarrow. He said, "Is that the way you get bees off the combs? Don't you have a brush at all? You can't do that where I came from." After watching for a short time he said he thought bees could be brushed off faster than when shaken. So he got a brush, and the two worked together. The result was, the man that had *no* brush put two combs into the super on the wheelbarrow to one of the man with the brush.

Now, the Hoffman or the Miller self-spacing frame is all right for some bee-keepers. They are the ones who remove the bees from the combs with a brush, and take their time in uncapping. But take the Hoffman frame as it is made to-day. Have seven of them in a ten-framed super. Will they stand a shake that will remove the bees? They do not. Then when it comes to uncapping their combs they are fat and heavy. The top-bar is covered with wax. The whole comb *should* be cut down *even* with the top and bottom bar.

The way to get the wax from the top-bar is to strike a quick downward cut with the honey-knife. What is the result? It is, after being shaken a few times they are minus the ends of the top-bar. After being uncapped a few times they are self-spacing no longer.

Now, it is not my object to try to change everybody's ideas as to religion, politics, or the style of frame he should use in a hive. The Hoffman frame is all right in its place — that is, for comb honey, and will do for the small producer of extracted honey.

Braceville, Ill. LESLIE BURR.

HOFFMAN UNIVERSALLY LIKED.

Referring to the matter of Hoffman frames, I can't for the life of me see how such intelligent men as W. Z. Hutchinson, J. A. Green, and others can feel that the Hoffman frame is a nuisance, or even difficult to handle. There never was a frame in use that was so universaly liked and used, or one that modernized bee-keeping to the extent that this frame has. This applies particularly to the great mass of bee-keepers, many of them not having the experience of the above-mentioned men. In other words it was and is a God-send to the novice. I have had in use at least 2500 of them at a time, and I would not replace them with any other frame, even if these cost $5.00 per 100, and the other were donated. It sounds too much like "inch strips of foundation in the brood-frames" being better than full sheets. I remember when this was advocated. No, don't change; continue to put them in every hive you send out for me and my customers, and I feel I can safely say for the world, and you will be doing the bee-keepers a favor that will be appreciated by 99 out of every 100. They are the best frames ever made, all things considered. GEO. E. HILTON.

Fremont, Mich.

HOFFMAN FAR AHEAD OF THE UNSPACED.

We have been interested in the discussion of the Hoffman frame. We have used it since its introduction, and for convenience in handling we think it far ahead of the unspaced frame. We are not troubled to any great extent with propolis, and so have no complaint to make on that point. From the standpoint of the jobber, we find our sales at least twenty to one in favor of the Hoffman, leaving the Danzenbaker frame out of the question. It strikes us that, if the hive-cover question is settled in as satisfactory a manner as the Hoffman does the frame question, we shall have reason to rejoice. Two of its worst features as named by Mr. Somerford on page 489—"broad end-bars," and top-bars so thick that "they place too much wood between the brood and the super for comb honey" — have advantages that more than counterbalance. We can hardly believe that manufacturers and dealers could force an unsatisfactory article on the unwilling buyer. There is no cemetery larger than that of "improved bee-hives" and things kindred. These bear evidence of a bee-keeping public that won't be forced.

M. H. HUNT & SON.

Bell Branch, Mich.

TRANSFERRED FROM LOOSE FRAMES INTO HOFFMAN.

Mr. Root:— You wish me to state briefly my experience with the ordinary loose thin-top Langstroth frame as compared with the Hoffman. I should not want to use the ordinary loose thin-top Langstroth frames any more at any price. We transferred several hundred colonies out of these frames on to Hoffman frames the past spring. As we do not have very much propolis here we think that the Hoffman frame would suit us better with a long top-bar and square edges to the end-bars instead of the V edge.

Denver, Col. F. RAUCHFUSS.

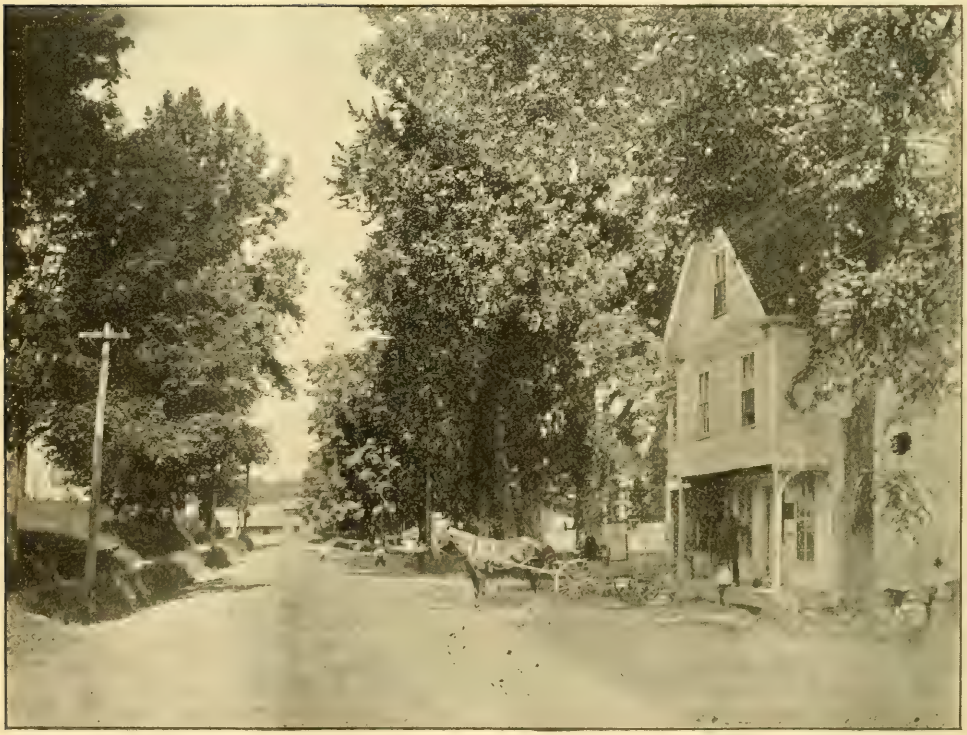
Hoffman frames are all right for me. I took out frames this spring that had not been moved for three years, and had no trouble with them. EDWARD WILSON.

Whittemore, Mich.

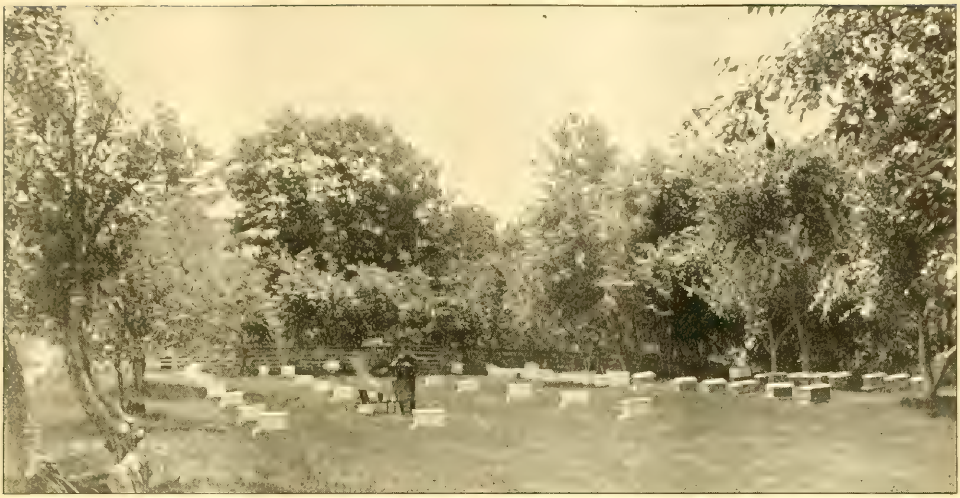
[I thought at one time, as I was a manufacturer of supplies, that I would take no part in the discussion; but some questions are raised that call forth some answer. At the risk of being accused of grinding my own ax I will attempt to state the manufacturers' side of the matter.

As I understand Mr. Green, the leader on the negative side of this question, the principle of the Hoffman frame is all right, and in the hands of a careful bee-keeper it will give very satisfactory results in most localities; that it suffers from neglect and misuse, and, in his opinion, the old hanging frame will suffer less from such neglect,

J. B. MASON.—SEE EDITORIAL.



J. B. MASON'S STORE AND SHOP; WAGON LOADED WITH SUPPLIES TO GO TO THE DEPOT.



J. B. MASON'S APIARY.

J. B. MASON'S RESIDENCE.

and therefore give more satisfactory results to the careless user.

Queer how differently we look at these things! Before I introduced the Hoffman frame (and I suppose I had a good deal to do with it) I was very much disgusted to see how the average bee-keeper spaced the unspaced frame of the Langstroth type. In dozens of yards that I visited some 15 years ago I found in many cases the regular Langstroth or Simplicity frames were spaced all the way from two inches from center to center clear jam up together, leaving the frames or combs in actual contact, and all built together. The farmer bee-keepers and others who did not keep posted almost invariably had their loose frames spaced in such a way they could not be removed without removing the whole set; and then such a mess! And then, too, I found that there was not one in ten that knew how far to space the frames apart, and so most of them guessed at it. Such unequal spacing, bulged combs, and thin ones, led me to favor some sort of self-spacing frame that could not possibly be spaced too close; and when I saw the Hoffman frame in use, and how, in the hands of the careless and indifferent, they were spaced evenly—combs like boards—I became convinced that a frame that could not be spaced too closely, like the Hoffman, *must be* far better than one that could be jammed up against its mate. As will be seen by the testimony offered by several of the writers in this symposium, actual experience in some instances at least seems to bear out the opinion that I formed in the early nineties. Note, for example, what Mr. F. E. de Beche says regarding the adaptability of the Hoffman frame to the incompetent help he has to put up with in Cuba. I suppose that, if there is any place in this wide world where one will meet with poor help, it is in Cuba. Then note what Mr. Woodward says in the next to the last paragraph in his article. Next see what Mr. Geo. E. Hilton has to say.

I will admit that the division-boards as originally sent out with the Hoffman frames were defective; but for the last three or four years the Root Co., at least, has made a board that is quite different from the first ones. While the new board was designed with special reference to strength and facility in removing, I think perhaps it can be improved and yet go in the hives as now without changing width. We will give the matter our careful consideration.

Shall we make the hive wider to accommodate a slightly thicker follower? I do not suppose it would be possible to lay before one not a manufacturer the exacting demands made by bee-keepers generally on the supply-manufacturer, and I give it up; but I will say this: When we have made slight changes in the style of hives or supers already in use, we have called down on our heads all kinds of complaints, not to say abuse. While friend Green would not object to having a brood-nest slightly wider than the super, there are hundreds of bee-keepers who would make a big scold. It is, therefore, better, in my opinion, to use one less frame, and use two followers, as suggested by Mr. Woodward; or, better still, construct a follower that will go in the present space that will be stronger than any sent out yet.

About the question of the number and size of nails, the bee-keeper can hardly complain that he does not have enough. We furnish more than enough of nails as large as the material will permit to make good solid nailing. In the case of the division-boards, the nails are long enough to go *clear through and clinch*, except in two places, and have been so for years. The nails are not put up in little packages—just enough for division-boards, and just enough for something else. They are put up in several large packages; and if one follows the printed directions he can not very well go wrong. If one is so careless as not to nail up even Hoffman frames, he will be equally careless with the Langstroth or any other style of frame. If there are very many people out your way, friend Green, like this, I don't wonder that they make bad work in the hive. If you will send in their names we will be tempted to give them free tuition to Correspondence Course in Bee-keeping. Such people need a little "educating."

I am glad that Mr. Green has introduced this subject, for no doubt much good will come from the discussion. There are no appliances made yet but that will bear some improvement. Honest criticism from honest men always paves the way for improvement, and the manufacturer who will give them (the criticisms) fair hearing may profit by it; and the one who is so egotistic as to think his wares are "good enough" may get left in the race.—Ed.]

THE MILLER NAIL-SPACED FRAME.

Nails vs. Staples ; Splints for Staying Foundation.

BY DR. C. C. MILLER.

There seems to be an impression in the minds of some that the Miller frame differs in nothing from frames already listed in the catalogs except that nails are used as spacers. The nails are by no means the chief difference; indeed, staples are used as well as nails, the staples being used for end-spacing. One feature of the frame is that the same width, 1⅛ inches, prevails throughout—top-bar, bottom-bar, and end-bars all being the same in width.

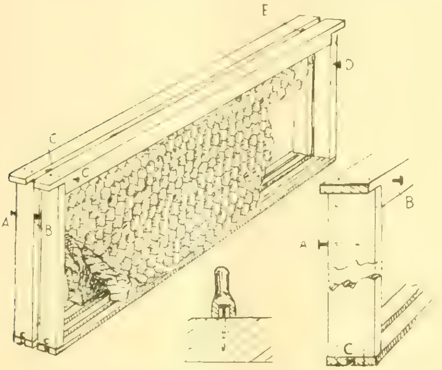
Except for the saving of lumber I know of no reason for having the bottom-bar or the end-bars any narrower than the top-bar. When end-bars or bottom-bars are further apart than ¼ inch, the bees sometimes build past them or between them. With the ¼-inch space this does not happen. A possible objection to so wide a bottom-bar is that the dead bees in winter do not so readily drop down through the ¼-inch space.

The top-bar is the regular thing, 1⅛ wide and ⅞ thick, with the usual kerf for foundation and another kerf for the wedge.

End-bars are 1⅛ wide and ⅜ thick. The extra rigidity pays well for the extra thickness. Besides, it will not split with the spacing-nails.

The bottom-bar is in two parts, each ½ in. wide and ¼ inch thick. That allows a space of ⅛ inch between the two parts to receive the foundation.

Foundation is cut to fill the frame *entirely* full, and enough more in depth to allow the foundation to pass up into the kerf of the top-bar and down between the two parts of the bottom-bar. Five splints, $\frac{1}{16} \times \frac{1}{16}$, imbedded vertically in the foundation, prevent sagging. It does one's eyes good to look at one of these frames built entirely out on all sides, with never a pop-hole along the bottom-bar. But if such a frame of foundation be given to the bees at a time when little is doing, they amuse themselves by digging the foundation away at the bottom.



DR. MILLER'S NAIL-SPACED FRAME.

The end-spacing is the regular Medina affair—staples driven into the end-bars immediately under the top-bar, and the ends of top-bar cut short. I know of nothing better.

For side-spacing I use common nails because I can't get the nails I'd like. The nails are driven in by a gauge, allowing them to project ¼ inch. You ask, Mr. Editor, how I get around the difficulty of the nails punching into the wood or pushing further into the side of the frame to destroy exact spacing. Look at the nail I inclose (if I don't forget it). That head is ¼ inch across, and you couldn't crowd frames together with enough force to make that head sink into the wood of the next frame. Indeed, so wide a head is unnecessary. Some that I have in use are $\frac{3}{16}$ across, which is better.

Now compare that nailhead with a staple. There is probably ten to twenty times as large a surface on that nailhead as on the end of the staple at the point of contact. In conversation with Mr. Morley Pettit, he was favoring the staple, if I understood him correctly, and I asked him if the head of the staple never sank into the wood of the adjoining frame. He frankly said it did. The nailhead does not. Just try *pushing* that head into the softest pine you can find.

Will not the nail be driven deeper into the wood when the frames are crowded hard together? Hold that nail beside a staple, and see which you think would be driven in with greater ease. The nail is ⅛ inch thick, I believe, and the galvanizing doesn't give it a smooth surface to drive in easily. Of about 5000 nails in use, I think I have known just two to be driven in any deeper, and they were driven away in. The wood was split, I think, in one case, possibly in the other. The only wonder is that the wood doesn't split oftener. The ideal nail would be one with a head ¼ inch deep, so that it would be driven in automatically the right depth, in which case a lighter nail could be used. I am not longing for a nail of that kind as much as formerly, for the nails I now use have stood the crowding-together of the frames for several years, and hard crowding at that. But I think I'd be happier if I could get the right kind of nails.

Four nails are in each frame. Hold the frame up before you, and two are on the side next you at the left end; two on the opposite side at the right end. The upper nails are in the top-bar a little above the center; the lower ones in the end-bars, 2½ inches from the bottom. Can you get fixed distance with smaller impinging surface?

Marengo, Ill.

[I do not know that I ever raised the question that the nailheads themselves would punch into the wood of the opposing frame; but I did say something to the effect that the *other* end of the nail might be forced into the wood still further, destroying the exact spacing; but that argument is entirely set aside by your actual experience, which is always worth tons of theory. The staple has two legs, and each of the legs is barbed. As between the staple and the nail punching into the wood, I do not suppose there would be any difference; so I think we may as well brush aside for all time this objection.

But, doctor, you have not alluded to the one fatal objection of the nails and nailheads to the extracted-honey producer. They, as a general rule, on account of the uncapping, prefer to dispense with all kinds of spacing devices; and even the wooden projections on the Hoffman frames are not looked on with much favor by many of that class of honey-producers. Your nail would catch an uncapping-knife, especially so many of them, worse than any spacer in use. You talk nail-spacing to an extracted-honey man, and you might as well throw a red rag before a bull.

Well, the staple is not quite so bad, because it has a rounded edge. Then, moreover, it permits of the frame sliding into position better than a nailhead, which has a tendency to *hook* or *catch* on to the next frame. This is not mere theory, but the result of observation and experience I have had with the two kinds of spacing, when I was experimenting with the idea of selecting one or the other for those who could not tolerate the Hoffman frame on account of the excess of propolis in localities like yours. Now, having said this much, I am prepared to believe that, for your locality, I should like your frame, for the production of *comb honey* exclusively, as well as any thing I know of.

I am inclined to think your plan of staying up foundation by means of splints is excellent. I will confess I did not enthuse very much over it when you first introduced it, believing it were better to await the results of your years' experience. That you continue to look upon it with favor, and that the bees do not gnaw away the comb along the wood to any great extent during a dearth of honey, as I understand they do not, are points worthy of our careful consideration. But even then the wire will have the advantage of holding the comb a little more securely for extracting and for shipping, because it is *attached* to the frame; and it would take a fearful slam or bang to dislodge a comb from the frame — so strong as practically to smash the frame itself. Extracting-combs, as I know from observation in California, and as I know in shipping bees, are subjected to some severe strains, and perhaps the only possible objection that may still stand against the wooden splints is this one. I am well aware of the fact that you are a producer of comb honey, and that your argument is that it is better for *you* to use what is best adapted to that specialty. But if you were like some bee-keepers, and in some localities, you would find it necessary to use a frame that you could use interchangeably for extracting and for comb-honey purposes. — Ed.

Heads of Grain
from different fields

HOW TO DISINFECT HIVES.

I have an opportunity to purchase a party's bees and outfit, including several empty L. hives. There is no evidence of disease in the hives now occupied, but the empty hives *may* contain germs of untold horrors. Would dipping these hives in a strong boiling solution of concentrated lye, as described in the A B C, for removing propolis, destroy, for instance, foul-brood germs?

I have read somewhere on the subject of "Uniting," that, if both colonies be liberally sprinkled with sweetened water to which sufficient extract of peppermint has been added to give a strong odor, all conflict would be avoided. Is there any merit in this claim? Geo. McAllister.

Mayfair, Ills., Sept. 6.

[Strong lye would hardly be suitable for disinfecting the hives. Your better way is to smear the inside of each hive a little with coal oil, touch a match to it, and, just as soon as the inside of the hive is blackened (not charred), clap the cover on, but the cover should be scorched in the same way. A more convenient method is to hold the hive over a bonfire with a long pole, exposing the entrance to the flame. When the inside of the hive just begins to take fire, dash about a gill of water in and clap the cover on. This will check the fire instantly.

Peppermint is sometimes used for uniting. With ordinary pure Italians, nothing need be used, and, generally speaking, I would unite any colony, whether hybrid or Italian, by putting them together. If they fight, smoke them a little. — Ed.]

THIN TIN AS A MIDRIB FOR COMB FOUNDATION.

Can not very thin tin be used for foundation instead of wax, and a coating of wax be put on it? It would be much stronger, and not liable to break. I have to confess that I am not smart enough to extract the honey without breaking the comb. I used foundation the size of the frame, and wired it; but before I get up speed enough to throw the honey out, the comb is ruined by breaking. A. H. Frank.

Red House, N. Y., Sept. 12.

[About 35 years ago our Mr. A. I. Root tested tin as a base or midrib for foundation. He even went so far as to run a thin grade of metal called "taggers' tin" through an old foundation-mill. He coated it with wax, and gave it to the bees. He secured combs, but found the expense of the product was altogether prohibitive, and no better than ordinary foundation sustained by means of wire at a mere fraction of the cost of the tin backing. It actually used more wax, and was colder for the bees. Then Moses Quinby, before A. I. R., had what might be called all-metal combs.

This field has been gone over thoroughly, not only by A. I. Root, but by hundreds of bee-keepers; and the general consensus of opinion has been that there is no better way to stay foundation than by the use of wire or wooden splints, as recommended by Dr. C. C. Miller. — Ed.

WHY THE COLONY DIDN'T BUILD CELLS WHEN MADE QUEENLESS.

Will bees start queen-cells at this time of year? I took a queen out of a hive, and left it six days so I could get some royal jelly to start some queen-cells; but they never started one. What must I do to get the bees to start queen-cells at this time of year?

Alto, Mich. Oscar Smith.

[You do not say whether there was any brood of the right age from which cells could be started at the time you removed the queen. Queens are apt to stop laying during the latter part of August and the late fall months. It is possible there was nothing in the hive from which the bees could build cells. If there are no eggs or brood of any kind the colony should be fed a little every day for about a week. This would probably start the queen to laying, then you could remove her and get cells.—Ed.]

RED-CLOVER BEES.

On page 656 G. M. P. asks Dr. Miller if it is possible to get bees that would work on red clover. I have had the red-clover bees for two years, and they have worked red clover both years. It was when white clover was in full bloom all around, and yielding honey, that I saw them on the red clover. I had five acres of alsike in full bloom at the same time. They will work red clover without any doubt. I have seen them shove their heads down into the blossom, and just stay there and drink; but I don't claim that they can get all the honey there is in red clover; but they can get part of it. All the fault that I have to find with them (and that is not a bad fault) is this: If you give them plenty of super room and a wide entrance they are not apt to swarm. I have had but one natural swarm in two years. All the way I can get increase is to resort to the "shook-swarm" remedy. I got my start of red-clover bees from J. P. Moore, of Morgan, Ky. I have been thinking that, if I could find a golden queen whose bees would work red clover, I would cross them with my bees to avoid in-breeding. My neighbors have been telling me that they have seen my bees on their red clover. One man told me there were so many bees on his red clover while he was cutting it for hay that they bothered his horses. I believe every bee-keeper ought to breed from the longest-tongued bees that can be found.

Velpen, Ind. W. T. Daveson.

DOES A QUEEN MATE MORE THAN ONCE?

This question is important to those who wish their purely bred queens to be purely fertilized once for all, with no risk of a future spurious progeny. I would add my testimony to that of those who have known a queen to go out for mating, and return with apparent signs of success, and then to repeat the performance after a few days' interval. For many years I have looked into this matter, and my records show several instances of this second mating, or what Mr. Whitney, p. 550, calls "copulation without fertilization." And now, while your correspondents have been discussing this question I have had another instance of the same thing.

Prof. Phillips says, p. 286, it is necessary "to get down by the hive every afternoon during the time of flight, and stay there until the queen is seen to fly and return." That is just what I did not have to do. Instead, I watched the queen from the time she came out of her cell until her final departure, many times each day, and sometimes at night; and the result was similar to what I had seen before.

May 30, 9 P. M.—Fine dark queen appears.

June 2, 12 M.—Queen shows great activity; follows a crowd of young bees to the exit, looks out, and retires.

June 3.—Bees begin to encircle and caress the queen. After an hour of excitement she took flight about 1 P. M., and in ten minutes returned with no evidence of success. An hour later she went to the exit but did not venture forth outside.

June 5.—Queen made flights at 12, 1, 2, and 3, being absent from ten to twenty minutes, the last time returning with a small appendage which the bees removed in half an hour. The substance came away entire.

June 6.—Queen takes another outing, and came back no more.

In very many cases of successful mating I have noted always that, as Baron von Berlepsch puts it, "the signs of copulation stand far out." (By all means see Langstroth, p. 126, note—I do not find the passage in Dadant.) But in these cases of unsuccessful mating, the appendage, although conspicuous, is much smaller than in the former cases, and is speedily plucked away by the bees instead of being gradually and wholly absorbed.

Whether a queen, after due impregnation, and after beginning to deposit eggs in the cells, ever finds it necessary to take another mating-flight, is a different question, admitting of no mere theory or guesswork, but calling for accurate and repeated observation to establish a fact. Meanwhile, there is no occasion for anxiety; for if a queen's wings are clipped she can not elope, and we may trust that our favorite strain of bees will continue uncontaminated until the scientists shall have discovered or invented some process of mating within the hive.

Hopkinsville, Ky. Daniel F. Savage.

ONE FAULT TO FIND WITH THE FENCE SEPARATOR; FOUL-BROODY HONEY NOT DISINFECTED BY BOILING.

One fault of the fence separator is the fastening of the cappings of the sections to the cleats on the fences; and when a fence is taken out the capping is broken, and leaking results. I think if the cleat were narrower so it would not overlap the sections, it would not happen so much.

I have fought foul brood for five years past, and kept my bees (my neighbors' bees are gone), and I have experimented several times with foul-broody honey. I first put the combs through the wax-extractor, and then boiled the honey and fed it back, and every colony so fed became diseased again, while those fed sugar syrup were healthy. Inspector France tells about cleaning up 200 colonies, feeding back the honey, and having bees to work again with the loss of only unhatched brood; but how many of those 200 remained healthy he does not say. I say, shake foul-broody colonies early in the first honey-flow, or feed sugar syrup and shake all diseased colonies in rotation at one job, and do not skip about the yard treating separate colonies perhaps a week apart. Get things ready, and do the job all together till the disease is under. If a colony goes wrong, shake it and render combs into wax. The wax, when made into foundation, I have no fear of; but the honey, I am satisfied, is bad to feed back. W. S. COMRIE.

Johnstown, N. Y., July 25.

[Once in a great while we get reports of combs built to the posts of fence separators. This difficulty sometimes occurs in some localities and with some methods of management. If the hives are very much crowded for room the bees will do this somewhat; but, after all, we have had many reports of comb attachments from sections to old-style wooden separators.

We have had several reports of how diseased honey, after being boiled, transmitted the disease again to colonies to which it was fed. Inspector France is an experienced foul-brood man, and probably realizes the very great importance of boiling the honey thoroughly, and for a sufficient length of time to disinfect it. Ten minutes' boiling has not been sufficient to kill the germs, in some reports we have had, while an hour's boiling is usually deemed sufficient. A good deal will depend on *how* the boiling is done, and very possibly Mr. France can accomplish the work of disinfection in a few minutes.—ED.]

NEW METHODS OF CURING FOUL BROOD NOT SUCCESSFUL.

I have been trying George E. Hinckley's plan of curing foul brood, but with no success. The spraying seems to keep the disease in check, is all. I also fumigated combs, and gave to a healthy colony; but the disease appeared at once on comb given. I followed Weber's directions. For a fumigating-box I used a wooden skeleton covered with soldered tin, with small door underneath. It is surely tight enough. See Hinckley's article in Dec. 1st issue, and p. 1014, 1903. You will notice Mr. Haines cures black brood, but says nothing about curing foul brood by the fumigating process .I think I'll try the old plan of curing it next year. Do the decayed larvæ still retain the sticky character after being fumigated? Those I tried did. F. W. MORGAN.

De Land, Ill., Aug. 5.

[Decayed larvæ, so far as I know, will still retain the sticky character after being fumigated. We should be glad to hear from you further as to whether the formalin method of disinfection proves satisfactory.—ED.]

SAINFOIN AS A HONEY AND HAY PRODUCER.

I quite agree with Mr. Adrian Getaz, page 752. Sainfoin deserves all that he has said of it. It is largely grown in England for hay; and if the land is suitable, very large crops are obtained; and as it roots deeply in the soil it stands a drouth better than most crops grown for hay. Sainfoin yields a large amount of most excellent honey; in fact, many prefer it to white-clover honey, and it seldom or never fails. The second crop comes at a time when there is little else for the bees to gather from. In England it is more universally grown than lucerne, or alfalfa, as it is called in the United States. I feel sure if some of your readers would try an acre or two of sainfoin they would be pleased with the result.

Being a perennial, when once established it lasts for years if a little top dressing is given occasionally. JOHN M. HOOKER.

Philadelphia, Pa.

EXCELSIOR TO KEEP BEES FROM DROWNING IN BEE-FEEDERS.

At the close of the season there are always more or less colonies which are short of stores; and under the circumstances the apiarist must supply the necessary food for such colonies. For the past few years I have been trying different feeders and various methods of feeding, finally purchasing a lot of tin pans holding about five pounds of feed which I set in the upper story above the brood-frames. After filling I take a fair-sized bunch of excelsior (new and clean) spreading it over the pan and around the sides so bees can have easy access to the feed. By this method you can refill the pan without removing the excelsior, and feed any amount with scarcely any bees drowning or loss of feed caused through leakage in using wooden feeders.

When through feeding remove the pans; tier them up, and place them in a remote place for further use. This does away with cloth or floats to keep bees from drowning, and is quick as well as economical.

Akron, O., Aug. 30. A. T. HALTER.

[This is a most excellent suggestion. As soon as the feed is consumed, more can be poured right into the pan, and there would be no danger of drowning the bees. I will endeavor to have this idea incorporated in a future edition of our A B C of Bee Culture.—ED.]

KEROSENE FOR BEE-STINGS; ALSIKE HONEY.

I saw on page 708 that kerosene is good for robbing. It is also the very best medicine for bee-stings that I have ever tried.

In GLEANINGS I have read all sorts of praise of alfalfa as a honey-producer; also white or German clover; but I never read any praise of alsike. With us it beats white clover, and makes a finer grade of honey. Of course, the largest flow of honey we have is from buckwheat and goldenrod. We get about 2 lbs. of this to one of clover and basswood. MYRON B. WOLLPERT.

Blanchard, Mich., July 27.

[Never read any mention of alsike? That is probably because you are not an old reader of bee-papers. Some years ago our columns were filled with it; and even in the last year or so we have had articles speaking of it very highly. That alsike is one of the best honey-plants in the world has come to be so generally accepted that very little is said about it.—Ed.]

1. How long is it after a swarm goes out before the young queen is ready to take her wedding-flight?

2. Is the Carniolan any different from the common black bee? If so, where do they come from?

3. Can a worker queen usually go through a queen-excluder? H. R. McGarrah.

Hanna City, Ill.

[1. No definite rule can be given here, as a good deal would depend on conditions; but, generally speaking, the young queen would be ready to take her flight within four or eight days. If she hatched about the time the swarm came forth, and had been held back in the cell, she might fly within three or four days.

2. The Carniolans, to the casual observer, would look about the same as the common black bees of this country. They are a little different, however, and quite different in characteristics. They are gentler, generally very quiet, being very much like the Italians. Their bodies are more of the bluish cast rather than of the brown. They came from Carniola, Austria.

3. By "worker queen" you mean fertile or laying worker, probably. There is no reason why such queens could not go through perforated metal the same as any bees.—Ed.]

AN INTERESTING CASE OF FOUNDATION.

Some time ago I got some foundation from America; and on giving full sheets to my bees they drew out the fine cells which I afterward found contained nothing but drones. On half-sheets being given they drew out the foundation into drone-cells, and pieced out the rest of the space with cells ⅘ smaller, which hatched out into workers all right. I enclose a small piece of foundation, of the bees' own manufacture, to show the size of cell. What gets me is that the queen-excluder is just right. I have watched the young ones hatch out, and they are much smaller, it seems, than the adults. Do you think this is the solution, that they grow, after hatching out, to the size of the American bee?

Would the introduction of an American queen get over the difficulty by enlarging the species so as to get a bee that would take kindly to the American foundation, although at the beginning the first batch would have to be hatched in the old (smaller cell) comb? or would it require a swarm from America? Geordy.

Shanghai, China, July 8.

[We have examined the samples of foundation that you have sent to us. The natural comb base which your bees made shows six cells to the inch, while worker bees of this country require five cells to the inch. It is not much wonder that your bees were confused and reared drone brood on the regular foundation having five cells to the inch; nor is it strange that they should piece out the comb with smaller cells. It is evident the ordinary foundation will not answer for your bees.—Ed.]

A SWARM THAT WOULDN'T STAY HIVED; NOT ROBBING BUT PLAYING.

My bees played for me a peculiar freak in June last. One colony swarmed. I fixed them up nicely (as I thought) for housekeeping, and went about my work, about 10 A. M. At 4 P. M. I saw all going back to the old hive; in three days they came out again. I hived them again, and again they came out and alighted close to where they had settled before. I tried to hive them again, but they would not stay, and finally they went away. What was the cause?

About a month after this, the colony that these went from I discovered in great commotion—more so, if possible, than when they swarmed. I thought they were being robbed. I closed the entrance to enable them to ward off the intruders. In a few minutes they had all settled down as quietly as though nothing had been occurring, and remained so. What did that mean?

Some three days later I observed the same actions on the part of bees that I had hived about four weeks before.

Connersville, Ind. John T. White.

[Bees bent on swarming will sometimes cut up peculiar freaks. No explanation can be offered.—Ed.]

A FLAT HONEY-KNIFE HANDLE.

It is important to have a flat honey-knife handle. Put the knife in the vise, and plane the handle half oval or flat. Whittle it with a jack-knife. It is the best thing I have discovered lately. W. L. Coggshall.

West Groton, N. Y.

[I believe this suggestion is a most excellent one; but our friend did not specify whether that flatness was to be on a plane parallel with the blade of the knife or at a right angle to it. We as manufacturers can just as well have the handles flattened as round; but before making any change we should be glad to get expressions from bee-keepers on this point.—Ed.]

A DIFFERENCE IN THE GRADING-RULES.

Would it not be well if the bee-papers, in printing the rules for grading comb honey, would use the same wording throughout? By comparing the grading-rules in Gleanings and *Review* I find quite a difference. For instance, in regard to "Fancy," Gleanings says, "All the cells sealed except an occasional cell," while the *Review* says, "All the cells sealed except the row of cells next the wood." The *Review* claims to give the

Washington grading-rules. GLEANINGS is supposed to give the same, but does not say so. Why this difference? and which set of rules is the producer to follow in order to be certain that his grading will not be rejected by the buyer?

Please, Messrs. Editors, put your heads together and come to an agreement on this point, so that the producer may pick up any bee-paper which comes handiest, and look at the rules without puzzling his brain about whether they are right or wrong. Grading is often a difficult job, and should not be made more difficult by conflicting rules.

WM. MUTH-RASMUSSEN.
Independence, Cal., Aug. 31.

[Several years ago it was suggested that a slight change in the Washington grading would improve it. We made the change, and supposed it was also made by the other bee-papers. What the reasons were for making the change I can not now recall. Those who were responsible for it will please let us hear from them.—ED.]

HOW TO MOVE BEES A SHORT DISTANCE AND HAVE THEM STAY.

I have a colony to move about four blocks. How would you move them without losing some of them? FLOYD SMITH.
Aurora, Neb.

[To move bees a short distance in the warm time of the year, shut them up in the hive, take them down cellar or to any cool place, and keep them for four or five days; but in doing so make very sure they do not smother. The entrance should be covered with wire cloth, and possibly the top of the hive, the amount of wire cloth to be used all depending upon the strength of the colony. At the end of the period of confinement, put the bees upon permanent location. A very few of them may go back; such as do may be collected on a frame of brood and carried to the new location, when they will probably stay for good.—ED.]

FRIEND SALISBURY SENDS A FURTHER REPORT IN REGARD TO HIS OLDSMOBILE.

My auto still goes, but it is a little more expensive than it was, for I have had to have one extra tire costing $17.00 with inner tube. It runs much stiller than when you were here last winter. Our folks can not tell when I go out or when I come in.

I just received a letter from Mr. Doolittle inquiring about gasoline. I can get it delivered at my door for 12½ cents. He had about 30 gallons that we purchased for him, together with 5 gallons he got separately. He still has 15 gallons, so he does not ride very much. I have used in the same time about 50 gallons. The set of dry batteries that came with the machine lasted till July 1, this year, and carried me all told about 3000 miles. I think they did extremely well. I have placed in a new set costing me 11 cts. each, or 88 cts. for the 8 cells. I have figured up the cost of running, and so far it has cost me 1½ cts. per mile, not counting the depreciation.

I have had no trouble to amount to any thing, with the exception of tire troubles. The tires are a nuisance. They puncture too easily. If they could only get up some kind of wooden tire that would stand the hard knocks I should be one of the first to use them. I don't like to repair tires that have been running in the mud, manure, etc. I can stand grease better than this, though I don't like that any too well.

Syracuse, N. Y. F. A. SALISBURY.

POISONED (?) HONEY FROM COTTON, AGAIN.

I note an inquiry in GLEANINGS, page 811, August 15, regarding poisoned cotton killing bees or poisoning honey. I keep a few bees and raise cotton, and poison it almost every year, but I don't find any dead bees or poisoned honey. Cotton blooms in the morning. The bloom is white. In the evening the bloom closes, and drops off next day. Cotton poisoned after 4 P.M. can't possibly hurt bees. Any cotton-planter will tell you that. SAM. AVARD.
Hawthorn, La., Aug. 20.

STINGS A CURE FOR RHEUMATISM.

I see in GLEANINGS, Aug. 1, W. W. Rich speaks of stings for rheumatism as a hoax. My wife suffered for several years with rheumatism in arms, hands, and shoulders. Last year she worked with me in my bee-yard, and of course got stung; also this summer, and now she is almost entirely cured. I feel sure it was the poison of the stings that cured her; and I can further say that I am not acquainted with any bee-man or woman who has rheumatism.

Southwold, Ont. F. W. EDMONDS.

[We shall be glad to get reports from others regarding the bee-sting cure.—ED.]

Sentimental and Practical.

BY MRS L.H. HAFFORD.

Dear to our hearts is the busy bee
 (Of course, for she brings us the honey);
Fleet to our sight is her airy flight
 (But her sting isn't quite so funny).

Busy indeed from morn till eve,
 Never a moment stopping;
I wonder if, like the daughters of eve,
 She has an idea she is shopping.

Over the apple-tree bloom she flits,
 And her hum of content—oh, hark it!
But the best of it all is, the sweet she gets
 We'll soon be sending to market.

And now, busy workers, the eve has come;
 Rest from your toil and labor,
While I in content, with the cash you've brought,
 Can chat with my next-door neighbor.

OUR HOMES,

BY A. I. ROOT.

The fear of the Lord prolongeth days; but the years of the wicked shall be shortened.—PROV. 10:27.

I suppose some people would smile if I should suggest that those who remember the sabbath day to keep it holy would live longer, as a rule, than those who either pay no attention to the sabbath or make it a day of visiting and seeking amusement. I have already spoken of the frequency of accidents and death on God's holy day; and for some time back I have been noting how the newspapers generally carefully avoid mentioning the fact that certain accidents and sudden deaths occur on Sunday. They give the day of the month without mentioning the day of the week. If the catastrophe occurs on week days they almost invariably give the day of the week. I suppose the explanation is something like this. The friends of the boy who was drowned go to the editor and say, "Please do not mention that it happened on Sunday. Just give the day of the month, and but few people will notice that it was Sunday. You see it looks a little bad to have it given right out in print that he was off with a crowd boating or bathing on Sunday; and it would be better, under the circumstances, to avoid calling attention to the fact."

I do not know that this is always true, but I think it must be, because where the excursion comes off without any mishap most of the papers simply say "last Sunday."

As the greater part of our great city dailies are now exhorting for better morals in almost every direction, I have wondered that they did not come out with more protests against Sunday desecration. The Cleveland *Leader* comes pretty near hitting the spot in the following editorial which I have just clipped:

> It is true, as it is inexplicable, that the first day of the week, our Christian sabbath, is notable in newspaper circles for its record of violent deaths. Monday's paper, chronicling the events of the preceding day, bristles with tragedies by water, by fire, by explosion, by accidents on railroads, in fact, by scores of common or unusual roads to the grave. Yesterday's paper was particularly marked in the regard referred to.

You will notice the above clipping was taken from a Tuesday paper. The last sentence refers to the record of accidents of the day before. They record the sad fact as "inexplicable;" but if they would reflect a little I think they might find a great lot of facts by way of explanation; and it is my purpose just now to mention some of them.

If we go into any community and sort out or sift out the persons who have little or no respect for the sabbath, you will not only have an ignorant lot, but a vicious lot. A man in our town wanted to run his billiard saloon all night and Sunday. The ministers of our place remonstrated, and their remonstrances were effectual. In talking the matter over with one of our principal divines—a man of education and culture—this fellow said something like this: "I do not go a —— on your Sunday." Of course, he put in a bad oath where I have placed the blank. Now, he meant that, so far as he was concerned, he had no sort of regard for Sunday, even if the laws of our land besides the feelings of Christian people respected it. Probably his religion consisted in making all the money he could by hook or crook, and looking out for No. 1. I suppose there are not very many who would go to such length as he did, especially in using such language to a minister of the gospel. But there are scores of people in every community who would as soon go to an excursion, circus, or theater on Sunday as any other day — perhaps a little sooner, because they then, as a rule, have more time. Well, is it not true and reasonable to believe that a crowd made up of such people would have fights or brawls, and accidents and wrecks of some kind? Just last Sunday, Sept. 18, there was an Italian picnic in Cleveland. Right in front of the band, where the biggest crowd was congregated, somebody exploded a bomb, killing two people instantly, and wounding a lot of others. Two explanations of the matter have been given. One is that an opposition Italian band had a spite against this one. The other is that some stupid idiot placed it there and lighted the fuse as a joke.

Next Sunday the Baltimore and Ohio Railroad Co. makes a very low rate all along its line to Wheeling, W. Va. They not only give remarkably low rates for this Sunday excursion, but at the bottom of one of the bills that was put up in our factory they hold out the following inducements to have people join the crowd:

> "Vaudeville show, band concert, bowling, roller coaster, merry-go-round, and numerous other amusements."

I mention this particularly, because it is the first time I remember to have seen a notice of a vaudeville show and band concert, merry-go-rounds, etc., operated on Sunday. Is this within the limit of the laws of our State and of the United States? or have our people got to such a standpoint that they trample the law under foot?

Some time ago in a conference with a number of railroad men they expressed a strong desire to be relieved of the Sunday-excursion business. They said they consented to it only under strong pressure, and that railroad employees were against it, and the railroad officials. I have heard this several times since. If this is true, who is it that is right down at the bottom of these Sunday excursions? Now, I would not undertake to make any long-range predictions in regard to the *weather;* but I think I can pretty safely predict (on short range) that there will be death or accident next Sunday at Wheeling.

A few days ago the younger people persuaded me to go down to Cleveland to see the automobile races. I objected on several grounds. I do not believe in contests of any kind; I do not believe in strife; and I am also opposed to running automobiles at a speed that endangers the life of the driver if a tire should burst or a wheel break down.* Had it not been for the danger of the thing I could have enjoyed somewhat seeing the automobile come right up toward me and pass close by at a speed of more than a mile a minute. It is a fearful sight to behold, and there is something grand about it to see what human brain and muscle have accomplished. I admired the skill and courage of Earl Keiser and others. I remember thinking at the time that none of these great races, so far as I had heard, had ever been made on Sunday; but a few days afterward the papers were chronicling a bad accident at the St. Louis exposition. Barney Oldfield, becoming blinded by the dust of his rival, ran into a fence, and killed two men. None of the papers, and none of the automobile journals (we take six) mentioned that it happened on Sunday; but the way in which the date was given made me remark to Mrs. Root, "There, I'm afraid this race was made on Sunday."

"But it could not have happened on the exposition grounds, husband, because they have never been opened on Sunday."

A little further along I found that the races were on the track outside of the exposition grounds; but reference to the calendar showed I was right. It was a Sunday race. I felt glad to learn that Mr. Oldfield declared then and there that he would nevermore take part in any race. I should have been better pleased had he declared to the crowd that he would never again race *on Sunday.* You may think I am going a little to extremes; but while I dictate I learn that Barney has already reconsidered his decision, and has been induced to continue in the racing business. Of course, some of you will call me superstitious because I think there would have been less danger of death had this race been on a week day. Well, here is one fact I can give you. Of course, an investigation was made as to whether Mr. Oldfield was in any way to blame for the deaths. He was exonerated, I believe, on several grounds. One was that one of the men who was killed had been told repeatedly by the police to get back of the rope, but he disobeyed orders, and this disobedience caused his death. Well, now, is it not true that the man who has no scruple about going to such a place on Sunday would be more liable to disobey the police? He has broken God's law, and it is but a little step to go further and break the laws of the land or of the presiding officer. Breaking God's law paves the way for disregarding man's law, and disobedience brings death. To make it shorter, "the wages of sin is death." Our text puts it in another way that makes it a little broader and more comprehensive.

Our great dailies, as I have suggested, are giving us some big lifts in the way of temperance editorials. May God be praised for these vehement exhortations. But why are these papers so silent about Sunday desecration? I wonder if Christian people generally are not getting a little loose in regard to this matter. Do they really believe that their example may be the means of bringing about accident and death, or, worse still, the ruin of both body and soul? In a recent terrible accident on Sunday, the fact was brought forth that the engineer in charge of the train had been on duty for 26 hours. Very likely they paid extra for overtime. They were making a lot of money, and could afford to pay a man handsomely for overtasking brain, muscle, and nerves, and with the result I have given. I wonder if that beautiful text would not come in well here: "With what measure ye mete withal it shall be measured to you again." I have before mentioned the fact that the American people all over the world have seemed to think that automobiles are immune to our Sunday laws; and it is suggested quite frequently, and I do not know but sometimes from the pulpit, that the old order of things is passing away, and that different conditions of things now call for different ways of Sabbath observance. Our pastor asked the question at our Saturday-afternoon prayer-meeting a few weeks ago whether it is the proper thing for a minister of the gospel to use the electric cars to meet his appointments on Sunday. I believe the general decision was that a man who preaches had better get to his appointments in some other way; for his presence on the car would certainly encourage others whose consciences might otherwise trouble them. They could say to themselves, if not out loud, "Why, our pastor rides on Sunday on the cars, and why shouldn't we?" Well, I believe I can say our pastor does not ride on the Sunday cars. He refused to take an appointment where Sunday travel would be almost a necessity. I think, however, he told us we should be a little careful about being too severe in deciding what other people should do. He mentioned quite a prominent divine who, he said, had to his knowledge preached during the day in Oberlin and in the evening in Cleveland. The distance is about 40 miles. He said he did not know how he managed to get to his Cleveland appointment. It would be too far to drive a horse, and the Sunday cars, either steam or electric, would seem to be the only way to make it. Now, I may be making a mistake; but my opinion is that the pastor had better preach less, or nearer home, than to encourage this kind of Sunday travel. Such a trip might induce the railroad men to say, "Why, even your ministers are dependant on our Sunday cars to meet their appointments.* Besides going to church on Sunday I have used our auto to go four miles out in the country to a schoolhouse Sunday-school; but when I did it I confess I felt a little troubled for fear people might think my daughter and I were just going out Sunday afternoon for a ride in the country through the fields and woods. I think it is well to ask ourselves the question, when we are considering about what we shall do on Sunday, "Will this thing I have in mind oblige any of my fellow-men to work on Sunday when they might not have to do so otherwise?" If *you* need the benefit of the Sunday rest, so does your neighbor, whether he lives next door or a thousand miles away.

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* Right before our eyes, one of the cars in that race, while going almost if not quite a mile a minute, burst a wheel, making a turn, and the whole thing went into the fence, wrecked. Nobody happened to be near the fence on that part of the grounds, and the rider escaped almost miraculously, comparatively unhurt.

*While I dictate, it occurs to me that a near relative of mine attends church every Sunday by means of the electric cars. In fact, she could not well get there otherwise — at least a great part of the time. It may be a question as to how many use the cars to go to church compared with those who go to some place directly antagonistic to our churches and Sunday-schools.

In speaking of the accident at St. Louis I said two men were killed. One was on account of disobeying the police. The other was passed by with the simple explanation that he was a "colored man;" and I felt sad to think that the general impression seemed to be that it was not so much matter if a colored man is killed. Now, I would urge that even a colored man, as well as the poorest common laborer of the white race, should have his Sunday as a day of rest. "Thou shalt love thy neighbor as thyself;" and God's holy word does not specify that our neighbor must be white to be considered as a neighbor in the full sense of the word.

Well, dear friends, I have covered only a very small part of our text. I have applied it mostly to Sunday observance; but I think we shall find that the fear of the Lord in a thousand ways not only prolongs our days but gives us health and happiness while we live. We should not only fear constantly breaking his holy commands, but we should love to reverence and recognize him as God the Father every day and every hour.

CAN A CHRISTIAN CONSISTENTLY TRAVEL WITH AN AUTOMOBILE?

Dear Sir:—I read, in the last issue of GLEANINGS, your discussion of the question whether a man can be a Christian and drive an automobile. I agree with you that it is rather a problem in horse-training than a question of ethics. This is an age of progress, and there is no reason why Christians should not be in the forefront. If they live up to their privileges they ought to lead the forward movements of society. From the point of view which you adopt, your conclusions are perfectly valid.

From another standpoint it may be questionable whether a Christian can drive an automobile at the present time. Automobiles are still in the experimental stages of development. They sell for prices that keep them in the class of expensive novelties. Where they do answer an economic purpose they are expensive substitutes for equally efficient though less attractive means of conveyance. When autos can be as cheaply purchased and maintained as carriages, a Christian may own and operate one as a necessity, but not until then. Let us see the reason.

Christ came to bring the more abundant life to all mankind. At his departure he commanded his followers, the first Christians, to preach the gospel to every creature. Each generation since has inherited the duty and the privilege implied in that commandment. The Christians of to-day are responsible for preaching the gospel, during their lifetime, to every person now living. The Chistians of a generation ago or of the generations following could not do it; besides, they are responsible for their own particular time. Christ said: "It is not the will of my Father that any should be lost, but that all may have eternal life. I came not to do mine own will, but the will of him that sent me. As the Father has sent me, so send I you. Go preach my gospel to every creature. He that loveth father or mother or houses or land more than me is not worthy of me. Unless a man will leave all and follow me he can not be my disciple."

Unless the men now living hear the gospel from the Christians now living, Christ's last commandment can never be fulfilled for them. This lays a great opportunity and a great responsibility at the doors of the Christian church to-day. Never has the world been open to the gospel as it is to-day. Never has the cry of need rung to heaven as it does to-day. Never has the consecrated wealth of Christians had the power for good that it has to-day. Never have there been so many consecrated men waiting to be sent as there are to-day. The price of an Oldsmobile ($650) will support an American missionary on any field for nearly eighteen months, or fourteen native workers in India or China for the same period. In view of the command of the Master, the need of the world, and the far-reaching results of the money expended, I doubt whether any man who has the same burning desire for the regeneration of men which marked the life of Jesus and his earlier followers would be willing to spend for an automobile money which could be bearing so much more glorious fruit for the kingdom of God.

May God forgive us for adopting his name when we so little appreciate his desires or share his spirit!

Rittman, O., Sept. 20. RAYMAN F. FRITZ.

Dear Bro. F., not only do I thank you for your kind exhortation, but I am sure every professing Christian will thank you from the bottom of his heart for the vivid and thorough way in which you have pictured before us the necessity of a higher spiritual plane of life than most of us probably know much about. Before taking up the latter part of your letter I wish to suggest that, if the time has not already come, it is fast coming when it will be, under many circumstances, cheaper to travel with an automobile than horses. And, again, is it not true that your suggestions in regard to the expense will apply equally well to fine equipages drawn by a high-priced span of horses?

I had the same feeling you mention when I consented to pay $650 for an auto. After over a year's experience, however, I am satisfied that in no other way could this sum of money have given us the comforts and conveniences this investment has. It enables me to take trips that I should hardly think of taking with a horse and buggy. It has enabled me to speak from experience in regard to this whole matter.

Once more, if we were to push this whole line of reasoning, can a professing Christian consistently build himself a house worth several thousand dollars? May it not be his Christian duty to live in the old house a little longer, using the money for missions instead of putting it in a new house? We have just finished an up-to-date bathroom in our house. I not only superintended the whole of it, but got down in the ditches to see that the pipes were all laid properly. Our new bath-tub is of enameled iron, and is as easy to keep sweet and clean as the dishes on our dining-table. The wash-basin and closet are also of the latest pattern from a sanitary point of view. You may remember that both Mrs. Root and myself at different times have passed through a siege of malarial fever, and I came near losing my life. I hardly need tell you that the hope of combatting such diseases is along the line of improved sanitation. It is possible, also, that an automobile, with the opportunity and inducement it gives for open-air exercise, may prolong life.

OLDSMOBILE

$650 IS THE Oldsmobile Price

Your money's worth and more.

A machine that took 20 years to perfect—so simple anybody can run it. You take no chance in buying an Oldsmobile.

For $650 you get an automobile with a road efficiency greater than any other runabout made.

You purchase a machine that has already proven so satisfactory in every way that we put two million dollars into the business of making it.

We couldn't do this if the Oldsmobile had not made good all our claims.

It is the best automobile investment anybody can make. Our catalog will interest every one thinking about purchasing an automobile. It tells about all styles; Touring Runabout, $750; Light Tonneau, $950; Oldsmobile Delivery Wagon, $850.

Increased power, speed, and size in the Runabout—no packed joints; hub brakes, and three-inch tires—larger gasoline and water capacity. It is built to run and does it.

Olds Motor Works,

DETROIT, AGENT MICH.

Mr. Bee Man!

am looking for your orders for queens. I please others, why not you? My trade has increased five-fold in the past four years. . . .

64-PAGE CATALOG.

J. M. Jenkins,

Wetumpka, Alabama.

QUEENS Golden Italian and Leather Colored,

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days, and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-Clover Breeders in the United States.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Neb., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

Last winter was a severe test on bees, but **Quirin's Famous Leather-colored Italians** wintered on their summer stands, within a few miles of bleak Lake Erie.

Queens now ready to go by return mail.

Prices after July 1.

	1	6	12
Select	$ 75	$ 4 00	$ 7 00
Tested	1 00	5 00	9 00
Select tested	1 50	8 00	15 00
Breeders	3 00	15 00	
Straight five-band breeders	5 00		

NOW IS THE TIME TO REQUEEN, and in doing so remember QUIRIN'S hardy Italians. We shall soon unite our nuclei for winter, so hurry in your orders.

Quirin-the-Queen-Breeder, Bellevue, O.

IT DOESN'T PAY

to keep those poor colonies when a young vigorous queen from the best honey-gathering stock given *now* may make them your *best colonies* next season. We believe we have as good bees as there are for *business*. We rear our queens carefully, rejecting poor cells or virgins; guarantee them good queens and purely mated, or replaced free on notice. Our testimonials will compare favorably with any. One queen, 75 cts.; six for $3.50; 12 for $6.50; select tested, $1.00; six for $5; tested, $1.00; select tested, $1.50; extra select tested, $2.00.

J. B. CASE, Port Orange, Florida.

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

I. J. Stringham, New York,

Keeps in stock a complete line of

Apiarian Supplies

1-lb. sq. Jars, with corks, $5.00 gross.
No. 25 sq. Jars, $5.75 gross. 12-oz. Jars (best seller) $5 gross.
Liberal Discount on more than one gross.

Apiaries--Glen Cove, L. I. Salesroom--105 Park Place, N. Y.

Queens by Return Mail

We are now breeding from three distinct strains, viz., Imported or leather color, Root's long-tongued or red clover strain, and our old strain of white-banded yellow Italians, or albinos. :: :: ::

August and September Prices

Untested, each........$ .65;	half doz. $3.75;	doz. $ 7.00
Warranted, each..... .75;	half doz. 4 25;	doz. 8.00
Tested, each		1.25
Select tested, each		1.50

We have also a full line of bee-keepers' supplies including The A. I. Root Company's goods . . . **Root's Sections and Weed's Foundation a Specialty.** Send for our 32-page illustrated catalog. . . . .

W. W. Cary & Son, Lyonsville, Mass.

Virginia Queens

Italian queens secured by a cross, and years of careful selection. From red-clover queens and Superior stock obtained from W. Z. Hutchinson. I can furnish large vigorous untested queens 75 cts.; after June 15th, 60 cts.; tested queens, $1.00; after June 15th, 75 cents.

Write for discount on large orders.

CHAS. KOEPPEN,
Fredericksburg, - Virginia.

150 TESTED RED CLOVER QUEENS,

three to five banders, fine queens, $1.00 each. Circular free. G. ROUTZAHN, Biglerville, Pa.

NO DRONES

in our printery. That is why we save you money. Sample hundred envelopes, noteheads, letterheads, business cards, statements, or billheads, **40c** postpaid. Samples free. **Young Brothers, Girard, Pa.**

MOORE'S STRAIN OF ITALIANS

AS RED-CLOVER WORKERS.

L. C. Medkiff, Salem, N. J., says: "I bought an untested queen of you last year, and her bees have filled three comb-honey supers, and did not swarm, while thirteen out of the fifteen other colonies did not get more than half that amount

I have queens from six different breeders, and I class yours 100 per cent above them all. Your bees worked very strong on the first crop of red clover. I know they were yours, because I floured them with a dredge-box and watched the hive. They also worked strong on the second crop of red-clover and lima-bean blossoms."

Untested queens, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5.00; dozen, $9.00. Safe arrival and satisfaction guaranteed.

Send for descriptive circular showing why my queen-trade has grown so fast. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Key.

The Best Stock!

Twenty years' experience in rearing Italian queen bees, and producing honey on a large scale has taught me the value of the best stock, and what the best queens reared from that best stock mean to the honey-producer. I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then by crossing these different strains and selecting the best and breeding from them I have secured a strain of stock that is the equal of any for honey-gathering.

Delanson, New York, July 10, 1902.

MR. ROBEY Dear Sir: The queens that I bought of you two years ago were the finest lot, and the best honey-gatherers of any queens I ever had, and I have had over 1000 queens from the principal queen-breeders of the United States. E. W. ALEXANDER.

Warranted queens in any quantity, 60c. each. Safe delivery and satisfaction guaranteed or money refunded.

L. H. ROBEY Worthington, W. Va.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—A good coon and skunk hunting dog.
P. W. Stahlman, West Berne, N. Y.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—Comb honey; state kind, quantity, and how put up.
Chas. Koeppen,
Fredericksburg, Va.

WANTED.—To exchange a few pounds of cultivated ginseng seed for Danzenbaker bee-supplies.
W. C. Sorter, Wickliffe, Ohio.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Quantity lots of gilt-edge, new, white-clover comb honey, plain or tall sections preferred. Also extracted honey in cans in exchange for second-hand cans.
B. Walker, Clyde, Ill.

WANTED.—Old comb. We expect to give our new wax-rendering machines a thorough testing this fall, and we shall need a considerable amount of old comb, for which credit will be given. Ship within 30 days, as that which is sent after that date can not be used.
The A. I. Root Co., Medina, Ohio.

WANTED.—Partner for party wishing to engage in bee and poultry business. Good farm, nearly 40 acres, with dwelling, barn, and poultry-houses, can be bought for $1500—$500 cash, balance mortgage. Bees averaged 80 pounds surplus per season last 5 years. Have 100 colonies, with unlimited range for out-apiaries. A living in poultry alone.
S. V. Reeves,
114 E. Park Ave., Haddonfield, N. J.

WANTED.—An experienced dairyman who likes to care for cows and make them do their best. Warm stable, cement floor, Bidwell stalls, water in every stall, three silos, 39 cows; milking hours, 4:30 A. M., 2:30 P. M. Wages, $300 per year, with house, garden, apples, pears, cherries, etc. If wife or any other member of family can milk, will pay more according to amount of milking they do. When answering this ad., give reference, also state number of members of family and their ages. I will give $5.00 to anybody who refers me to the man that I will employ.
J. P. Watts, Kerrmoor, Pa.

Situations Wanted.

WANTED.—Situation with a bee-keeper in Cuba or Jamaica, for six months or term of years.
F. G. Denzinger, Olean, N. Y.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

For Sale.—6000 pounds white comb honey, best offer gets it.
Quirin-the-Queen-Breeder,
Bellevue, O.

For Sale.—30 colonies bees, 8 Langstroth frame hives.
Robt. J. Colburn, 6827 Union Ave., Chicago, Ill.

For Sale.—Several hundred colonies of bees, with locations—in southern California—for particulars address
I. A. King, Derby, Tex.

For Sale.—For $1200, or will trade for part cash and a small farm in good location for bees and poultry, good city property in Harvey, Cook Co., Ill.
Frank Brunskog, Harvey, Ill.

For Sale.—Sweet-clover seed, 50 pounds or over, at 5 cts. per lb. Address
Joseph Shaw,
Strong City, Kan.

For Sale.—120 colonies of bees, and fixtures for extracted honey, and home; will invoice about $2000.00. Write me.
D. S. Jenkins, Las Animas, Col.

For Sale.—Second hand 60 lb. honey cans Good as new. Satisfaction guaranteed
Lewis C. & A. G. Woodman, Grand Rapids, Mich

For Sale.—Five-gallon square tin cans used for honey, at about half price of new cans. For prices etc address
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y

For Sale.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap.
O. H. Hyatt, Shenandoah, Page Co., Iowa.

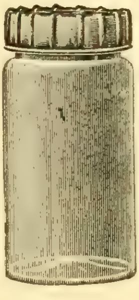
For Sale.—500 colonies of bees in Root's 10-frame hives in fine condition. Will sell in lots of 50 or upward. Also fine 100-acre farm at a bargain. Write or call quick for full particulars.
Udo Toepperwein, San Antonio, Tex.

For Sale.—Apiaries consisting of 500 colonies of bees; also, 1904 honey crop of 60,000 pounds of comb and extracted alfalfa honey. Address
Dr. Geo. D. Mitchell & Co.,
340 4th St., Ogden Utah

For Sale.—On account of not having room in my cellar to winter all the bees I have, I will, for the next 30 days, sell full colonies of pure Italians in nine-frame hives at $4.00 each. Hives are in good condition. In lots of five, will give one super with each colony. Safe arrival guaranteed.
F. A. Gray,
Redwood Falls, Minn.

For Sale.—Having sold my farm, I desire to close up my entire business, and offer for sale two fine bee locations with 500 colonies, near Santa Monica and Los Angeles. Most complete of any.
Herman Lehmann, Santa Monica, Cal.

SIMPLEX HONEY-JAR.



We have found a new glass jar for one pound of honey, which we think surpasses any other style we ever offered. It has a glass top which screws on to the glass jar with a rubber gasket between. The joint is on a taper so that, the further you screw the cover on, the tighter it makes the joint. It can be sealed absolutely air-tight; has no metal to rust or corrode. It is about ¾ inch higher than the No. 25, which improves its appearance. We sell them at the same price as the No. 25, and have a carload in stock ready to fill orders. We first learned of this jar nearly a year ago, but have said nothing about it until we had the stock in hand ready to supply. We still have some No. 25 in stock for those who may prefer to continue with it We believe, however, the Simplex jar will take the place of the No. 25.

THE A. I. ROOT Co., Medina, O.

Convention Notice.

The South Texas Bee-keepers' Association will meet at the Court House, Beeville, Texas, Wednesday and Thursday, Oct. 19 and 20, 1904. All bee-keepers and others interested are invited to attend. No hotel bills to pay.

E. J. ATCHLEY, President,
L. W. BELL, Secretary,
Beeville, Tex.

HAMILTON COUNTY BEE-KEEPERS' ASSOCIATION.

The annual meeting was held in the convention room, Grand Hotel, Cincinnati, Monday, Sept. 12, when the following officers were elected for the ensuing year: President, Fred W. Muth; vice-president, John C. Frohliger; treasurer, G. Green; secretary, Wm. J. Gilliland.

Executive committee, R. L. Curry, A. E. Painter, C. Kuck, E. P. Rogers, E. H. Chidlaw, Wm. McLennan, E. H. Vaupel, Theo. Meyer, Wallace Burch, Dr. A. B. Barker, Wm. R. Gould, Miss Carrie Boehme.

The secretary presented his report as follows: The executive committee has much pleasure in presenting their second annual report, which indicates a continuation of the prosperous condition that has been shown since its organization, a marked increase in membership, and a continued influence among bee-keepers in the immediate neighborhood, county, and adjoining States.

The most important event of the year was the enactment into a law of a bill for the treatment of foul brood, and the appointment of a foul-brood inspector under its provision. The promotion of this measure was undertaken by us. Valuable assistance was rendered by the Hamilton County representatives, led by Mr. D. R. Herrick, who took charge of the measure in the House, and exerted his influence in pushing the bill to its final stages and ultimate passage. This is the first attempt at legislation in the State of Ohio, in the interests of the bee-keeping fraternity, and the Hamilton County bee-keepers may be termed the pioneers of bee-legislative measures in the State of Ohio.

The next matter of importance which we were instrumental in advocating was the addition of a honey schedule and premium list at the Hamilton County fair, at Oakley, Ohio. Quite an exhibit of extracted honey in jars, comb honey in sections and supers, were exhibited, and substantial premiums were awarded to competitive members of our association. We regretted that more bee-keepers did not avail themselves of this opportunity to compete. We would remind them to make preparations early next year, and make a showing that would be alike creditable to the bee-keepers and to the influence of this society.

The year ends with 58 subscribers on the roll of membership as compared with 47 last year. This increase is made up principally of practical kee-keepers who manifest a desire to learn the best methods in modern bee-keeping.

During the year now ended were held 12 regular and 4 special meetings, making 16 in all. The attendance was a very good average, considering the variable weather and long distances a great many of the members had to travel to attend the meetings.

WM. J. GILLILAND, *Sec.*

Our readers will please notice the reduction in price of books advertised by The Frisbee Honey Co. on page 920.

Our readers interested in wagons will get a book valuable and interesting by mentioning GLEANINGS, and asking the Electric Wheel Co., of Quincy, Ill., for their book on wheels.

SEND TO-DAY

When you build or repair you want
the roof that will give you the best service
for the least money. That's why we want to tell
you more about

PAROID ROOFING

Contains No Tar. Slate Color.

Economical in cost, easy to put on, durable and satisfactory. Each roll contains a complete roofing kit. Don't take an imitation. If your dealer hasn't Paroid, send to us. At any rate

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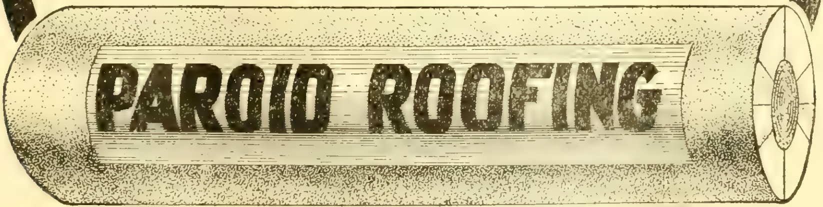

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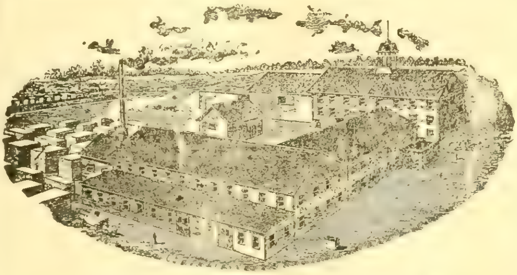

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HAY TOOLS
of all kinds. Write for Circulars and Prices.

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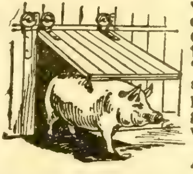

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

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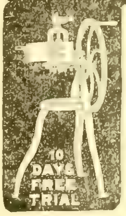

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No money asked for until you prove our guaranty that **Mann's Latest** will cut all kinds of bone easier, faster and in better shape than any other. If not, send it back at our expense. Isn't that better for you than to pay cash in advance for a machine you never tried? Catalogue free.

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A. R. HARDING. Editor.
Gallipolis, Ohio.

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Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

During this month (October) I will offer a ***Special Discount of 6 per cent for Cash orders,*** for goods wanted for next season's use. During November the discount will be 5 per cent. These discounts apply to orders for hives, sections, foundation, etc., but not for honey-packages or shipping-cases, or goods for immediate use. One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer.*

HONEY

I have on hand a large stock of extracted honey in 60-lb. cans, white-clover or water-white alfalfa. A single can of either at 8½c per pound. Two cans in a box at 8c per pound. Bee-keepers having a demand which exceeds their supply can here avail themselves of an opportunity.

Have you noticed what the leading Bee-keepers of Indiana have been saying about my line of goods? Here is another sample letter. . . . . .

Alexandria, Ind.

Walter S. Pouder, Indianapolis, Ind.

Dear Sir:—I have been dealing constantly with you for 15 years, and in all that time have not had a single cause for complaint. Your goods come promptly every time. In 1897 and 1903, both good honey years, and in the rush, when a single day's delay meant a loss in dollars to me, yet order after order was filled promptly and correctly. To me the name Pouder is a synonym for promptness in business. I can recommend you to those who need supplies in time for the harvest. Truly yours, Evan E. Edwards.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

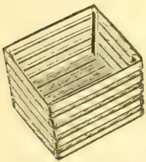
513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

SPECIAL NOTICE
Special Notices
By Our Business Manager
1904

GOOD SECOND-HAND CANS.

We have on hand upward of three hundred boxes of second-hand 60-lb. cans, two in a case, in excellent condition. Most of them have been used but once, and are bright, inside and out. We offer them in ten-box lots at 45 cts. a box; 25 boxes or more at 40 cts. a box. We can ship also from Hollidays Cove, W. Va., where we have a part of the stock. We have also some more cans, not in quite as good condition, but which would be good enough for low-grade honey. We offer these in ten-box lots or over at 30 cts. a box. To distinguish from the others, order these as third-class cans.

BUSHEL BOXES.



The season is at hand when bushel boxes are needed for handling potatoes and other farm crops. The accompanying cut shows our all slatted box which has been used for years, and is a most popular box. It is 16 inches long by 13½ wide and 12½ deep, inside measure, holding a heaped bushel when level full. One box may be nested inside of two when empty, so they can be handled in bunches of three. As packed, there are 14 in a bunch — 2 nailed up and the other 12 in flat, with nails included. We usually make them with oak corner-posts; and, so made, the price is $1.90 per crate of 14. We have quite a stock on hand, packed ready for shipment, of all-basswood slats, no oak corners. We offer these, to close them out, at $1.75 per crate; ten-crate lots, 5 per cent discount.

AIKEN HONEY-BAGS.

We did not include these bags in our catalog this year because we wanted to see them more generally tested in different sections of the country, and proven a satisfactory package everywhere before doing so. We are prepared to supply them, and have arranged for a 1-lb. size in addition to the four other sizes sold heretofore. We are now supplied with all sizes.

1-LB. SIZE, 3½x5½.

100	$ .65	1000	$5.50
500	3.00	5000 @	5.25

2-LB. SIZE, 5x7½.		5-LB. SIZE, 7x10.	
100	$ .80	100	$ 1.20
500	3 75	500	5.50
1000	7.00	1000	10 50
5000 @	6.60	5000 @	10 00

3½-lb. SIZE, 6x9½.		10-lb. SIZE, 10x10½.	
100	$1.00	100	$ 1.50
500	4.75	500	7.00
1000	8 75	1000	13 50
5000 @	8.25	5000 @	13 00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2 00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

GOODS IN SEASON.

Cases for marketing comb honey.
All kinds of packages for marketing extracted honey. . . .
Glass jars for canning fruit. . .
Bee-escapes for taking off honey.

Every thing the very best.

Standard-bred Italian Queens. Full line of the best Bee Books. . .

We yet have a full line of hives, sections, comb foundation, and every thing necessary for the bee-keeper. **Big discount on all goods for next season's use,** if ordered at once. Order now and save money, and be in time for next year.

Catalog Free.

C. M. Scott & Co.,
1004 E. Washington St.,
Indianapolis, Ind.

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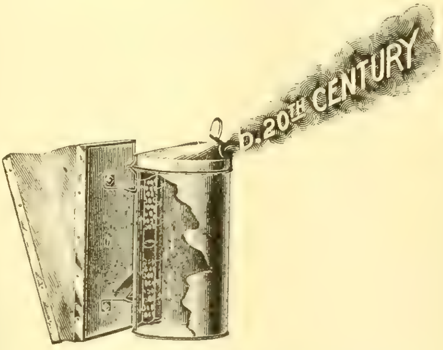
...$1.00 Smoker...

Guaranteed to suit or the dollar back.



Buy the D. 20th Century Smoker, it is the best. The construction is so simple and complete, it is sure to please, can not clog, smokes three to five hours at one filling. $1.00 each; three, $2.50 by express or with other goods; by mail, each, 25c for postage.

F. DANZENBAKER, care the A. I. Root Co.'s space (29) West Annex Horticultural Bldg., St. Louis, Mo.

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NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in
BEE-KEEPERS'
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We will allow a cash discount of 6 per cent on orders sent in during Oct.

Send for Our FREE New Illustrated Catalog and Price List.

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RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

GUS. DITTMER, - - - AUGUSTA, WISCONSIN.

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BEE SMOKER

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Volume XXXII. OCTOBER 15, 1904. Number 20

MASSACHUSETTS AGRICULTURAL

GLEANINGS IN BEE CULTURE

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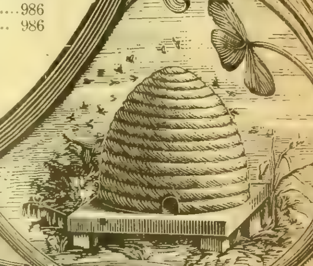

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BEESWAX WANTED AT THE HIGHEST MARKET PRICE.

LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

6 Per Cent Discount for October.

George E. Hilton, Fremont, Mich.

DISCOUNTS

For the New Season---for Cash Orders.

During October, 6 per cent.
" November, 5 "
" December, 4 "

And you get Root's Goods. Tell us what you want, and we will tell you what it will cost. **Our Catalog for the asking.**

M. H. Hunt & Son, Bell Branch, Mich.

C. H. W. Weber,
Headquarters for
Bee-Supplies
Root's Goods at Root's Factory Prices.

Let me sell you the **Best Goods Made;** you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: :: :: ::

I Keep Everything that Bee-keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Queens Now Ready to Supply by Return Mail; Golden Italians, Red-clover, and Carniolans. Will be ready to furnish nuclei, beginning with June, of all the varieties mentioned above. **Prices for Untested, during June, one, 75; six, $4.00; twelve, $7.50.**

I will buy Honey and Beeswax, pay Cash on Delivery, and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,
Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
CINCINNATI, OHIO.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—The honey market has been quite active in the last ten days. Quite a good many arrivals. There seems to be a bigger diversity in range of prices than we have seen in this market for years. A number of shipments have been sent to commission men with instructions to clean them out at the best price. This has hardly made an established market price for any of the grades of comb. We quote: Fancy, 16@17; No. 1, 14@15; amber, 12. Extracted, fancy white, 8; No. 1, 7; amber, 6½. Beeswax selling freely at 28. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Oct. 8. 10 Vine St., Philadelphia, Pa.

CHICAGO.—The receipts are now larger than the immediate requirements, but no material change in price is noticed. The best lots of white comb bring 13@14, with lower grades ranging 1c to 3c less. Extracted white, in cans and barrels, 6½@7½; amber, 5½@6½. Beeswax, 28@30.

R. A. BURNETT & Co.,
Oct. 8. 199 South Water St., Chicago, Ill.

ALBANY.—Honey demand good at present time. Ruling price for best white clover, 14@15; best buckwheat, 12½@13½. Occasionally some small lots of extra fancy sell higher than above named. Extracted slow. Not much call for it. Buckwheat, 6@6½; clover selling at 6½@7½. Beeswax, 28@30.

MACDOUGAL & Co.,
Oct. 8. 326 Broadway, Albany, N. Y.

CINCINNATI.—Comb honey is now coming in more freely, and prices if anything have a little moderated. The sales made and prices obtained were, for No. 1 fancy water-white comb, 13@15; No. 2, 12½@14. Extracted is sold as follows: White clover, 6½@8; amber in barrels, 5¼@5½; in cans, 6@6½. Beeswax, 27.

C. H. W. WEBER,
Oct. 8. Cincinnati, O.

SAN FRANCISCO.—Honey, new crop comb, per lb., 10@12; extracted, water-white, 6; light amber, 5½; dark amber, 4½@5. Beeswax, per lb., 28@29.

Sept. 27. ERNEST SCHAEFFLE, Murphys, Cal.

TOLEDO.—The comb honey market is somewhat improved since the last quotations, owing to the cool weather and the ending of the fruit season, the demand is much better. We quote fancy white clover and linden, in a retail way, 15; No. 1, 14; amber, 12. Extracted, in barrels, white clover, 6@6½; in cans, 6½@7; amber in barrels, 5@5½; in cans, 5½@6. Beeswax, 26@28.

GRIGGS BROTHERS,
Oct. 7. Toledo, Ohio.

BUFFALO.—There is quite an improvement in demand for comb honey during the past two weeks. I think the demand will continue to improve, but do not expect to see prices advance any. Fancy white comb, 14@15; A No. 1, 13@14; No. 1, 12@13; No. 2, 11@12; No. 3, 10@11; No. 1 dark, 11@12; No. 2 dark, 10@11; fancy white extracted, 6½@7; amber, 5½@6; dark, 5@5½. Beeswax, 32@35. Beeswax scarce, and selling very well.

W. C. TOWNSEND,
Sept. 26. 178 Perry St., Buffalo, N. Y.

KANSAS CITY.—The supply of honey at present is fairly good, but the demand is somewhat limited on account of the continued warm weather. No. 1 white comb, fancy stock, is selling at $2.75 per case of 24 sections. Extracted is selling very slowly at 6@6½.

C. C. CLEMONS & Co.,
Oct. 10. Kansas City, Mo.

DENVER.—We quote our local market as follows: No. 1, white, per case of 24 sections, $2.50; No. 2, $2.25. White extracted alfalfa honey, per lb., 7@7½c. Light amber extracted, 6¾@7. Beeswax wanted at 25 cents delivered here for clean yellow stock, dark or dirty wax from 2 to 5 cents less per pound. Local trade in honey is light at present, which is due to the immense amount of fruit on the market.

THE COLORADO HONEY PRODUCERS' ASSO'N,
Oct. 11. Denver, Col.

BOSTON.—We quote our market for white comb honey, 16@18; No. 1, 14@16. There is a good demand, and receipts are not excessive. Extracted honey wanted, with practically no stock on hand.

BLAKE, SCOTT & LEE Co.,
Oct. 11. Boston, Mass.

SCHENECTADY.—Both comb and extracted honey selling freely. No. 1 buckwheat comb honey is scarce. We quote fancy white paper cartons, 16; A1, 14@15; No. 2, 12@13. Buckwheat, 11@13. Extracted, unchanged. Write us before shipping. Have just received notice of shipment of extracted honey from North Carolina to our old address in Albany, and we left there six years ago.

CHAS. MCCULLOCH,
Oct. 8. Schenectady, N. Y.

FOR SALE.—Extracted honey. No. 1, from alfalfa, 7½ cts.; No. 2 alfalfa, partly from cantaloupe, 6½ cts. Home and bees for sale. Write me.

D. S. JENKINS, Las Animas, Colo.

FOR SALE.—Finest quality, extracted white-clover honey at 7½c. per pound, in cases of one new 58-lb. can. Sample, 8c.

R. & E. C. PORTER,
Lewistown, Ill.

WANTED
FANCY COMB HONEY
In No-drip Shipping Cases.
Also AMBER EXTRACTED
In Barrels or Cans.
Quote your lowest price delivered here. WE REMIT PROMPTLY.
THE FRED W. MUTH CO.,
No. 51 WALNUT ST., CINCINNATI, OHIO.

For Sale.—Limited amount fancy extracted honey, ripe and of extra fine body and flavor. First extracting done Aug. 16. All sealed and ripened on the hives. Amber honey to come off yet. Prices in bulk in 60-lb. cans in pairs, 6 to 7½ cts. per lb., f. o. b., Otsego, Mich. Single cases, two cans, ½-ct. per pound more. Samples by mail, 4 cts. each.

O. H. Townsend,
R. F. D. No. 2. Otsego, Mich.

For Sale.—104 sixty-pound cans, two in a case, of fine clover extracted honey, at 7½c, on car here. Crop is two-thirds sold. You will have to speak quick if you get any of this fine honey. Sample free.

E. D. Townsend, Remus, Mich.

For Sale.—2000 lbs. fancy and No. 1 comb honey.

Nelson Dewey, Adrian, Mich.

For Sale.—Light colored honey, fine flavor, barrels, 7c; cans, 8c; amber, 6@7. Sample, 10c.

I. J. Stringham, 105 Park Place, N. Y. City.

Wanted.—New crop white comb honey. Describe what you have, and state price.

Evans & Turner, Columbus, O.

Wanted.—Comb and extracted honey on commission. Boston pays good prices for a fancy article.

F. H. Farmer, 182 Friend St., Boston, Mass.

Wanted.—Beeswax; highest market price paid. Write for price list.

Bach, Becker & Co., Chicago, Ill.

Wanted—Comb and extracted honey. State price, kind, and quantity.

R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

Wanted.—Comb and extracted honey. State kind, quantity, and how put up, and lowest cash price.

Chas. Koeppen, Fredericksburg, Va.

Wanted.—Buckwheat honey in kegs or cans. Send sample, and state price delivered at Medina, New York, Chicago, or Philadelphia. Mention quantity you can furnish.

The A. I. Root Co., Medina, O.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year Write us if you have any to dispose of.

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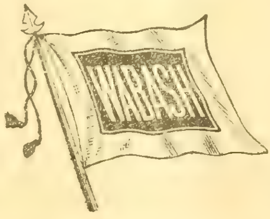

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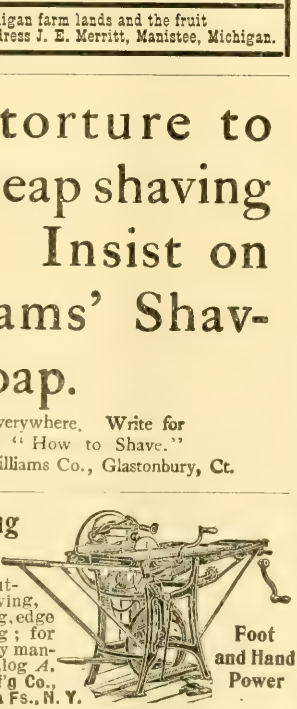

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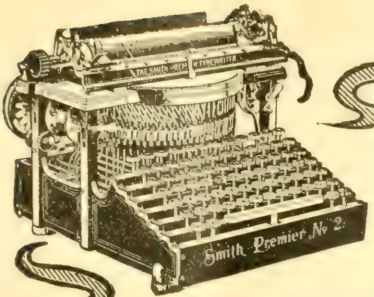
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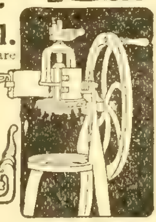

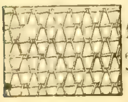

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Vol. XXXII. OCT. 15, 1904. No 20

Stray Straws

By Dr. C. C. Miller.

MORE WOMEN than usual at the St. Louis convention. Good thing. [Yes, the more the merrier.—ED.]

SAINFOIN is having quite a boom in Canada, according to reports in *Canadian Bee Journal.* At the experimental farm, more bees were counted on the sainfoin plots than on any of the plots of other clovers.

S. E. MILLER, in *Progressive,* quotes a Straw which he challenges, to the effect that "the queen lays only worker-eggs the first year of her life." Bro. Miller, look again at p.792 and you'll see that, instead of a Straw, that's one of Stenog's pickings that he picked from a German journal. You're right that the statement is a little off; at least, if you call it the rule, it's a rule with many exceptions.

T. K. MASSIE says in *Rural Bee-keeper:* "Our experience is that, when a second swarm issues, every virgin queen which is old enough to fly at the time the swarm issues will go out with the swarm." Not if there's to be a third swarm, Bro. Massie. I wonder just how it is when there's to be no more swarming. Perhaps somewhat mixed; sometimes going with the swarm, and sometimes remaining for a nice little battle in the hive.

J. A. GREEN wants to know my views as to overstocking and bee-keepers' rights. If he will read p. 928, first column, he will find my views pretty clearly expressed; and if he desires further expression upon any point I will gladly accommodate him. One thing is certain: If bee-keeping ever becomes as stable and reliable a pursuit as other lines of agricultural industry it will be when a man can feel just as sure of the pasturage for his bees as he does of the pasturage for his cattle; and that time will never come till he has some legal rights in the case.

SOMEWHAT STARTLING is the statement made by Mr. Doolittle, p. 925, that 9 Gallup frames, the equivalent of 6¾ Langstroths, are enough to "entertain the best queen to her full capacity as to egg-laying." Allowing ¾ of a frame for pollen and honey, and counting that the remaining 6 frames will be entirely occupied by the queen, that figures up only a little more than 2000 eggs as the queen's daily stint. Yet isn't it Mr. Doolittle who tells us that a queen goes as high as 5000 eggs in a day?

I INCLOSE a sample of the new foundation, called Columbus foundation, that is now having quite a boom in Germany. As you will see, it has a metal base, that is, a thin sheet of metal is in the center of the septum. The mate to this sample I put in the center of a brood-frame. It was drawn out and occupied by the queen with reasonable promptness, all but a little at the edge, where the bees dug the wax off the metal. At this date, Oct. 3, quite a bit more of the metal has been bared, and I suspect they will never again put wax on it. Possibly such a thing would not occur if a frame were entirely filled with it so that the bees could not have any bare edge to start upon.

[This kind of foundation is very much like what my father made along in the early 70's. He found that the bees, just as you say, would gnaw the wax from the metal, and then leave it bare. It was a conductor of heat and cold to an extent that, in cool weather, the bees seemed disposed to cluster on something that was warmer. The bees would draw it out into comb, a good portion of it; but when the metal was once bared it would stay so. But, outside of this, such foundation must necessarily be very expensive. There is no likelihood that it will ever be on the market any great length of time.—ED.]

TROUBLE in the Miller family. S. E. Miller, editorial writer for *Progressive Bee-keeper,* refers to a recent Straw quoting the advice from a foreign journal to leave queen-cells uncut and return after-swarms as fast as they issue, so that the young queens may fight it out and the fittest survive. He seems surprised that I did not protest against such advice—doesn't believe the best queen in the lot will come out victorious, and says: "In fact, I should think that just the reverse would be the fact; the best queen would be the one most fully developed as a queen, while the poorest would be the one least developed as a queen, and therefore partaking more of the nature of a worker and having a more fully developed sting, and therefore the more likely to be the victor in a battle royal."

Bro. S. E., your reasoning would be all right if some of the queens were not fully developed, and if workers were more powerful than queens; but I have always supposed that all queens in natural swarming are fully developed, and that a queen is more powerful than a worker; so if there should happen such a thing as a battle between a perfect queen and one part worker, I should expect the fittest to survive. It is a common thing for the young damsels to settle their differences by resort to the code duello, and it would have been a serious mistake on the part of Dame Nature to rule that the poorer should survive.

A sure sign of laying workers is to find a queen-cell with more than one egg in it; at least I never knew but one exception to the rule, and that was a few days ago, when a normal colony with a normal queen had a queen-cell with two eggs in it. But laying workers may have a dozen eggs in a queen-cell. I feel almost sure that laying workers prefer queen-cells to lay in because a queen-cell is a more comfortable place. I once saw a laying worker backed into a worker-cell, and her wings were pushed up about her ears in a manner that must have been very uncomfortable. Next to the queen-cell comes the drone-cell for comfort. I've seen cases where eggs were laid by laying workers in worker-cells just as regularly as a good queen would place them, and no mortal could tell by the looks that laying workers were present so long as no brood was sealed; but that was because no larger cells were available. If in doubt in any case, look sharp for a queen-cell cup or a drone-cell. If you find one of these in the brood-nest with more than one egg in it, that settles it—laying workers. But if you find one or more of them in easy reach with nothing in them, while worker-cells are occupied, you may feel easy that a queen has done the work—all of which is easily explainable on the theory that, the larger the cell, the more comfortable it is for the laying worker. And I may add, by way of postscript, that a queen-cell within reach will have more eggs in it than any other kind of cell. [While I would not argue that there was only one laying worker at a time, would it not seem to indicate that there was only one in the case cited where the eggs were laid as regularly as those by a queen? If there were more than one, there would have been some patchy work and a plurality of eggs in one cell.—Ed.]

Pickings from Our Neighbors' Fields
By
"Stenog."

Mr. Lukomski says in the *Bulletin*, the organ of the Tunisian Bee-keepers' Society, that the poison of bees is capable of counteracting the effects of fever even more effectually than quinine, a few stings arresting malaria or intermittent fever of the worst type. Wasps, hornets, bumble-bees, and all the hymenoptera, have the same power.

* * *

Centralblatt, as quoted by the *British Bee Journal*, says Mr. Zince has succeeded in wintering a colony of bees without combs to cluster on. "The hive was placed in an attic above a room that was well heated, and the colony was fed with liquid honey. Up to March the bees had not built any combs. It has become a good colony during the season."

* * *

Mr. Dickel, a well-known German bee-keeper, made the following experiment as reported in the *British Bee Journal:*

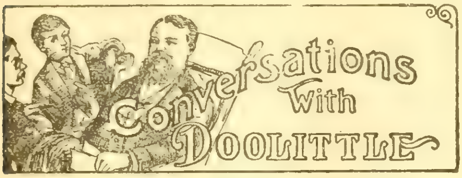
> He cut a hole in one of the combs of a hive and inserted a piece of comb with the eggs it contained, taken from a wasps' nest. The experiment was repeated thrice, and every time it produced a curious commotion among the bees. In approaching it the bees stopped dead, as if fascinated by the strange substance. Their antennæ were extended forward with feverish movements. They then dashed upward and spun around madly. This was soon followed by others who joined in the unrestrained dance. By degrees some of them got over their fear of this strange object, and approached it with their trembling antennæ extended and flapping their wings, and still continuing their comical dance. At length they decided to risk an attack, and tore the nest into shreds, evidently with repugnance. They were more undecided about touching the eggs, but these they also attacked at last, crushing them with their mandibles. They seemed thoroughly disgusted, and showed it by getting rid of the egg-shell as quickly as possible with their front legs.

* * *

On page 793 I made reference to the strong effort that is now being made in Great Britain to get a foul-brood law passed, similar in nature to what we have in this country. A great deal of correspondence has reached us relative to the struggle, which I can not explain here; but it seems the trouble in the way is not so much the objection on the part of the government as it is on the part of some bee-keepers who would willingly suffer the loss of all they have rather than help their neighbors and be well paid for it. I take the following extract from the *Irish Bee Journal*, the editor of which seems to be doing all he can to secure so wise a measure. As an example of selfishness it is quite unique :

We have just heard of a case in which an obstinate owner "is keeping a district infected," and who said to the local expert who offered to treat the bees free of charge—"I know nothing about the disease, and I don't want to. I don't care about my neighbors' bees. I have no intention to trouble myself, and I won't allow any one to touch my hives."

The matter has been hotly discussed in the *British Bee Journal*, but I do not understand that the editors of that paper are unconditionally opposed to a foul-brood law for England—I hope not. If no repressive measures were used in this country, foul brood would be almost universal; whereas it now cuts but little figure, and that in small spots. The plague is thoroughly licked here.



HAVING THE BEES BUILD STRAIGHT WORKER COMB FROM NARROW STRIPS OF BROOD FOUNDATION, AND AT THE SAME TIME GET A CROP OF SECTION HONEY.

"How long have you been in the bee business, Mr. Doolittle?"

"I commenced keeping bees in the spring of 1869, or 35 years ago last spring. But why did you wish to know, Mr. Green?"

"That was before the advent of comb foundation, was it not?"

"Yes."

"Could you get your combs built straight in the frames before you used foundation?"

"Not at first, till I learned how."

"Thinking that you might have tried to get straight worker comb built without the use of comb foundation was the reason for my asking you how long you had been in the bee business. And now I want you to tell me just how you worked for straight worker combs before the days of foundation, as I wish to prepare my frames for next year during the fall and winter, thus having them all in readiness for use next season. I tried a few colonies at comb-building last summer, and got a lot of crooked combs, quite a share of which was of the drone size of cell."

"As a starting-point toward straight comb we used to stick strips of worker comb to the under side of the top-bar to the frames; but as a strip of worker-comb foundation half an inch wide is much more preferable, I should certainly purchase enough foundation for this purpose."

"How do you cut the foundation into these half-inch strips?"

"I pile half a dozen sheets together, then lay on a straight-edge, having a block under each end of the right thickness, so that only enough pressure will come on the foundation to hold it in place, the most of the pressure coming on the blocks. Without these blocks the foundation would be smashed together so as to injure it."

"That solves one of my troubles, for in trying to cut more than one sheet at a time I have jammed the side walls to the cells all into each other. How about the cutting?"

"Having all fixed ready, take a very thin table-knife and grind it very sharp. Soak a rag with kerosene oil, and then draw your knife across this rag once or twice before you try to cut the foundation. Then with a quick motion draw the knife along the straight-edge, not bearing on too hard. If you draw it quickly enough the friction caused will warm the knife and cause the kerosene to lubricate it so that you will have a smooth perfect cut, the edges shining like glass after the cut has been made."

"Well, that is a kink worth knowing, for I have always about mauled mine off. Now, how do you get it on the under side of the top-bar of the frames where you wish it?"

"The first thing you want is a lamp, a tin dish, a spoon, and some wax or paraffine. Put the tin dish over the lamp and the wax, and spoon in the dish. When the wax is melted, turn the wick of the lamp up or down, as the case may be, till you are able to keep the wax a little above the melting-point all the while."

"I have always melted wax over the kitchen stove; but I can see an advantage in this way of having things just where I wish them, and in regulating the heat. This will help me in many ways."

"Besides this wax part you will want a light board having a handle on it, a little larger than your frame, outside measure. Near one edge of this board you will nail a strip about two inches wide, that is a little shorter than the inside of your frame under the top-bar, and a little less than half the thickness that your top-bar is wide, so that, when your frame is laid on the board, and the under side to the top-bar pressed up against this strip, your half-inch strip of foundation will come just in the center of the bar to the frame, when the foundation is laid on this strip and placed up against the under side of the top-bar. Do you see how this is done?"

"Yes, I can see that part."

"Now drive two nails part way in, just at the edge of the board your frame lies on, and in such a place and shape that, when you lay your frame against these nails, it will slip right up to the strip the foundation is to be laid on, without any holding or trouble on your part, further than to drop in the frame. Do you get that?"

"Yes."

"Now make two more boards like the first, and fix all three on your bench so that the top-bar to the frame and the foundation, when in place, will form a V-shaped trough, one end of which is to be considerably higher than the other. We are now ready for our work of putting on the strips of foundation which are to be the comb-guides. Drop the frame in place. Lay the strip of foundation on the narrow strip of wood, and press it up against the under side of the frame till it touches all the way, thus making a joint that the melted wax will not run through, when you will pour enough wax in at the upper end of the trough from your spoon so that it will flow all along to the bottom end. Put the spoon back in the melted wax; fix frame and foundation on the next board, and pour the wax in at the upper end of the V-shaped trough again. Then do the third one in the same way, when the first one will have the wax all cool, and the guide stuck fast, ready to be lifted out and placed in the hive where it is to remain. Now put in a frame, fit up your foundation strip and pour in your wax, where this first frame has been removed, when your second frame is ready to be lifted off and set in the hive. In this way you can put on these guide-strips faster than I am doing the telling how."

"Well, that is simple after you know how."

"This, as you will notice, not only secures the combs built straight in the center of each frame, but also starts the bees with building cells of the worker size."

"Yes, I see. But is that all you have to do to get them completed all worker comb?"

"No. And I can best tell you the rest by supposing we are putting a swarm in a hive having nine of the started frames. Suppose we hive a swarm in such a hive this forenoon. Two days later I open the hive, and usually find that the bees have made a start on five frames; but if they have not, I leave five in the hive just the same. The other four frames are now taken out, and a dummy taking the place of two frames is set on either side, so that we have the five frames in the center of the hive. I now take the sections from the old hive from which the swarm was taken, and, after putting them over these five frames, the hive is closed. This throws the full force of the bees on these five frames and in the sections, and they will soon fill these five frames with straight worker comb, and have them filled with brood; for in thus fixing things the bees are incited to the rearing of worker brood below, while the honey is being stored above. This also gets the bees into the sections as soon as may be, and we secure a good yield of honey of the choicest kind."

"But, why did you not put on the sections when putting the bees in the hive?"

"Had I done this the bees and queen would have gone up into the sections as far as possible, and the queen commenced her brood-nest there, unless we had used a queen-excluder under the sections. And, even with the queen-excluder, had the bees commenced work in the sections while on the parent hive the queen would have tried to get in the sections, and work in the frames below gone slowly, with not nearly so nice combs."

"After the five frames are filled, what then?"

"I generally leave things thus till the harvest of white honey is over, when the hive is filled out with combs from some of those tiered-up colonies I tell about in the February 1st Gleanings for this year. If we try to have the bees build more than these five combs, we shall have no trouble in getting them straight, because they can be no other way, if we set an empty frame between two full ones; but we shall have trouble with the bees building drone comb, if we try further. Therefore I prefer to fill out the hive with combs already built; and in the absence of such, use frames filled with wired foundation for completing the full number of combs to the hive."

"Well, I thank you for this interview. Good morning."

"Good morning."

Editorial
By E.R. Root.

Our boys have about discarded the use of excelsior or sawdust for fuel, including planer-shavings. We are now burning in our smokers little square blocks of basswood that we get out of the kindling-pile. One of our Jumbo Corneils filled will last all day with such fuel. Mr. Bingham has long advocated hard wood cut up in small pieces. Our wood is soft, or semi-soft, and we prefer it because it burns a little better. Then it lasts long enough for all practical purposes.

USE OF BEE-STINGS AS A REMEDIAL AGENT.

In the spring of this year, Wm. A. Selser, of 10 Vine St., Philadelphia, who has charge of the apiary on the roof of that building of The A. I. Root Co., was called upon by the Associated Press reporter for information regarding the use of bee-stings in medicine. He called just at a time when Mr. Selser was putting up 10 pounds of bees in alcohol for a large drug company in Philadelphia. He seemed intensely interested in the subject, and was very particular to know what they were used for, and also the stings, as Mr. Selser also had an order for 15,000 stings to be supplied the coming season, to be extracted and placed on sugar. This reporter called at the office of the Philadelphia Drug Co. to inquire in what way these stings were used in medicine. He found they were used not only in preparations with other solutions for rheumatism, but in cases of diphtheria with other solutions, and some other diseases.

He returned to the roof apiary, took a number of photographs, and wrote up quite an article regarding the same, and sent it to four or five of the leading papers of the United States. From this Mr. Selser was deluged with inquiries and reporters from different papers and magazines; and as it is customary for a magazine to enclose a check for any article on any subject they wish written, in order to economize they sent their reporters to write it up from what information they could get in an off-hand way. They took notes from Mr. Selser's replies, and from this wrote their papers, with the result that some of the most ridiculous articles were written regarding the subject, some of them without the least foundation of fact.

Mr. Selser has been experimenting with a rubber mat, as he terms it. This is a gelatin substance like rubber, in which the bee could insert its sting and not extract any of the fluid, in order to get the price of the sale of these stings to such a figure that large orders might be taken. A number of the papers conceived the idea, for the sake of notoriety, that the supply was not equal to the demand, and many bee-keepers have written Mr. Selser to get him to share some of these orders with them, etc. He has written us that the demand is very limited, and it is a question of development in the future whether the sale of the same will be increased very much or not.

We have sold from our New York office two pounds of bees that are to be put in a preparation for restoring the growth of hair on bald heads, the party claiming he will use several hundred hives for this purpose if this preparation sells, as he fully expects it to sell, claiming it is no experiment any longer, as the same substance by which he places the live bees so preserves the medicine, and aids it to do its work.

As this party has paid money for the bees, we presume he thinks, at least, there is something in this discovery; but we have our doubts.

A number of people have written Mr. Selser, and some have already come to the Jenkintown apiary to be stung for rheumatism, so that Mr. Selser has made a price of $2.00 for the first application and $1.00 for every subsequent application.

For the cure of rheumatism there have been some quite remarkable reports of a very favorable character. Mr. Selser, in a recent letter, in referring to this writes:

> When I had lumbago, seven or eight years ago, I paid Dr. H. C. Wood, our specialist in that line, $50 for the advice of telling me, when he knew what business I was in, to go home and sting myself twenty-five times in the lumbar muscles of the back. There is no question that bee-stings, as well as bees in alcohol, are now being used, and have been used for many years, of which I have sufficient proof, in many different ways, in medicines and medical preparations.

THE ST. LOUIS CONVENTION ; A FEW SIDE-LIGHTS.

WHILE this was not by any means the most largely attended meeting of the National Bee-keepers' Association, it was, perhaps, the most representative. The place of meeting, in the very heart of the United States, and the big fair, drew bee-keepers from every portion of the country, with the result that there were 28 States represented, and two foreign countries—Russia, which had sent its accredited representative, Mr. Abram Titoff, who for nearly two years has been studying American methods at Medina, and Mr. Glen Moe, Candelaria, Cuba, a bee-keeper of prominence and standing in the new republic.

Mr. J. U. Harris, the president, made a model presiding officer—the best, I think, we have ever had. He is a strict parliamentarian, and gave the bee-keepers of the convention an example of how strict parliamentary methods could facilitate discussion, and yet give every speaker the opportunity of the floor.

It will be remembered that at the Los Angeles meeting a year ago we had an "irrepressible conflict" to deal with, with the result that one of the sessions was marred by the spirit of war. At the St. Louis meeting there was an almost entire absence of any thing of that kind, notwithstanding representatives of both factions were present. Those who had fought so bitterly on the floor of the convention at the previous meeting now joined hands and worked together in perfect harmony. True it was, there were slight outcroppings once in a while of the old war spirit; but it no sooner came to the surface than it disappeared.

One of the wags of the convention, Mr. E. W. Whitcomb, of Friend, Neb., in commenting on the peace and harmony that prevailed at this meeting, whispered to me during one of the sessions, "Ernest, we had vinegar at Los Angeles. We are having sugar here; and now say—do you—do you suppose we shall have flies at the next place of meeting?"

But there will be no flies, no matter where we go. The old hatchet is buried, and honied sweetness, without flies or vinegar, will be in evidence.

It was a little comical at times, but another kind of "war" was going on during the sessions of the meeting—the great Boer war, within about half a mile of the convention pavilion. The roar of the heavy field-pieces, the bursting of bombs, the rattle of the high-powered rifles in the hands of a thousand soldiers, and the drumming of several Gatling guns, made such a din and uproar that the speakers were obliged to suspend for a few minutes until the noise of battle ceased. No sooner would they resume than again the boom of cannon and the rattle of a thousand pieces would stop proceedings. (By the way, the Boer war is worth going to see.)

There was present at this meeting the venerable Dr. G. Bohrer, of Lyons, Kansas. He was present at the early meeting of the old North American, at Cincinnati, when Hetherington, Quinby, Langstroth, Gallup, A. I. Root, H. A. King, Mrs. E. N. Tupper, and other bee-keepers of olden times, were flourishing at their best. He was active at the early conventions, and served to link the past with the present history of the Association in that he took a lively interest in the proceedings of this meeting.

The convention took hold of the question of the alleged manufacture of comb honey in a way that will mean much to the bee-keeping interests of the country. But, unfortunately, a "cog slipped." A committee was appointed to prepare a statement for the press, and secure its insertion in some of the leading St. Louis dailies. The statement was telephoned over to the night editor of the St. Louis *Republic*. Imagine the consternation of the bee-keepers the next morning when a brief item came out, to the effect that the members of the great international convention, in their session at the Christian Endeavor hotel, just outside the fairgrounds, were divided in their opinion as to whether comb honey was manufactured or not! You can believe this produced a buzz of protest at the next morning's convention. A vigorous resolution, prepared by a committee, denying absolutely that comb honey was manufactured, and offering a reward of $1000 for evidence of such manufactured honey, was passed by a tremendous *viva-voce* vote, every one rising to his feet. A committee was appointed to wait on the editor and secure a corrected statement. It made several attempts to get together, but failed, and finally Mr. E. T. Abbott, a member of this committee, called on the aforesaid night editor, and gave him a "few facts." The next morning the following statement came out:

> BEE-KEEPERS OFFER REWARD; CLAIM THEY CAN NOT BE DECEIVED BY MACHINE-MADE HONEY.
>
> Delegates to the National Bee-keepers' Association, which has been in session at the Christian Endeavor Hotel since last Tuesday, devoted their time yesterday to the discussion as to whether it is possible for comb honey to be manufactured by machinery.
>
> On account of the fact that the public press has from time to time published statements to the effect that this has been done, and thereby causing people unacquainted with the making of honey to take same as an accomplished fact, a committee appointed by the convention adopted the following resolution:
>
> In view of the oft-repeated statement in the public press that comb honey is made, filled, and capped over by machinery,
>
> *Resolved*, That the National Bee-keepers' Association will forfeit the sum of $1000 to any party or parties who will furnish proof beyond successful contradiction that said statement is true, and produce as part of such evidence two pounds or more of such comb honey that has been manufactured without the use of bees in any way, with sufficient skill to deceive ordinary honey experts.
>
> E. T. Abbott,
> Ellis E. Pussler,
> E. Kretchmer,
> M. A. Gill.

This was very fair, except that the matter had been doctored by the aforesaid editor in a way that was not at all to the taste of Mr. Abbott and the members of the committee. Still, the item as a whole was very good, and is probably as good as we could expect under the circumstances from the average newspaper man.

A feature of the convention that was very convenient and much appreciated was the putting of large numbers on the coat or waist of each member when he registered. The entire list was then printed, with the name and postoffice opposite the corresponding number. Each member was then furnished a copy for reference. Sometimes we would forget who such and such a man was; but a glance at his number and a comparison of the printed list would show instantly who he was and where he lived. In the same way the stenographer could easily identify each speaker on the floor. Later on, Mr. Hutchinson took a picture of all the members, and of course these numbers will tally with the printed list below the picture. All together, the number feature was a great convenience, enabling us to get the right name to each face, and thus get better acquainted.

There were very many interesting discussions and papers at this convention; and I will endeavor to give in our next and subsequent issues a condensed report. But it will repay well every reader of this journal to send $1.00 to General Manager N. E. France, Platteville, Wis., and secure a verbatim report of the whole proceedings, which will be issued in book form in a couple of weeks. This dollar will not only entitle you to a full report, but also to all the benefits and privileges of the National Bee-keepers' Association. Even if you do not expect to get any very great pecuniary benefit, remember that the dollar turned into the National will mean a great good to the bee-keeping interests of the country. This organization is not only a sort of protective association, but it looks after the interests of its members in a hundred different ways, and no bee-keeper can afford not to be identified with such an organization.

BEE AND BEER EXHIBIT AT THE ST. LOUIS FAIR.

It is a matter of regret that the bee-keeping interests of the country were treated somewhat shabbily by the management of the exposition. Strong efforts had been made to have all the exhibits in Agricultural Building along with other allied industries. A fine location was laid out, and at one time there was a reasonable prospect of securing it, but the management gave this space over to the bee(r) instead of the bee business. As a natural consequence, the exhibits of bees and honey and bee-supplies were scattered all over the grounds, miles apart and in obscure places. Many bee-keepers came away without seeing a single exhibit relating to their chosen pursuit.

The A. I. Root Co.'s exhibit (the only one of its kind) was put in an out-of-the-way place over into the basement of Horticultural Hall, a building that is clear over to one corner of the grounds. This basement is very rarely visited by sight-seers, and, all together, the location was most unfortunate. Our representatives made a vigorous protest, and finally secured a small space in the same basement next to Senator Swink's exhibit of bees, honey, and beeswax. The A. I. Root Co. was given no definite information as to where it could have its exhibit in the first place, and was not able to prepare a booth that would be in keeping with other exhibits of its class. As a natural result, the display was rather commonplace as compared with those made at other expositions. Senator Swink, in spite of his being pushed off into the basement, had a most magnificent display of Colorado honey and beeswax. We have made arrangements to secure a photo of it, and hope to present it in GLEANINGS at some later date.

In Agricultural Building there were several displays of honey and wax made by several of the States. There was one exhibit of wax in the form of a magnificent piece of statuary that was finer than any thing I had ever seen. This I hope to present to our readers at another time.

In the Japanese pavilion there was a Japanese hive, some chunks of beeswax, and some bottled honey. Beyond these I did not see any other honey exhibits.

If the bee-keeping industry could have been given a quarter of the space allotted to some of the minor industries we could have made a fine showing; but it seems the management, rather than give an industry represented by over half a million bee-keepers in the United States, and whose total output is something like fifteen millions of dollars annually, gave the space that we ought by rights to have had over to the liquor interests. And, by the way, there was beer everywhere at every restaurant; and Agricultural Building itself, the largest building that has ever been constructed in the world for exhibition purposes, contained most magnificent displays of bottled liquors. So numerous were these displays that one would almost think that the great Agricultural Building was mainly liquor and nothing else. Beer was the only cheap thing on the grounds. It was in evidence everywhere. At several of the booths I could get milk or a cup of coffee for 15 cts., or a mug of beer (which I did not order) for 5 cts. Many drank beer as a matter of economy in place of coffee or milk. As if it were not enough to have the liquor interests represented all over the grounds in the form of magnificent beer-gardens and drinking-booths, in which men, women, and children drank *ad libitum*, there were immense beer-pavilions and beer-gardens just outside of the grounds. At one of the gardens (I don't remember whether it was just outside of the fairgrounds or not) a certain bee-keeper I know, whose word can not be questioned actually counted over 2500 people drinking beer at one time, seven-tenths of whom were girls. This state of things in this enlightened country is disgusting to a large class—certainly the *better* class—of people in this land; and I hope the like of it will never be seen again in or around a great world's fair in the United States.

A. I. R., while listening to the above, which I read from my manuscript, remarked, "What shall the harvest be as a consequence of teaching young girls to drink beer in this wholesale way, especially when these young girls get to be the mothers of future generations that are to hold and save this nation of ours?"

NOMINATIONS FOR OFFICERS OF THE NATIONAL BEE-KEEPERS' ASSOCIATION.

IT will be remembered that the Board of Directors of the National Bee-keepers' Association authorized the General Manager to issue a call, in August, for postal-card nominations from the members, indicating the preference of the writer for suitable persons to fill the offices to become vacant in January next. According to the ruling of the Board, these card nominations were to be counted Oct. 1, by the General Manager and one other member of the Board of Directors, and that the two men receiving the highest number of votes for their respective office were to be considered candidates for such office, and to be published in the bee-journals at once. In accordance with that ruling, the General Manager has appended a list of the offices to become vacant, and of the nominees suggested. The two highest are given in the first column. But the General Manager, in conversation with me, stated that he thought it better to give all the other names that had been suggested for each office. The following, therefore, will explain itself:

PRESIDENT. TWO HIGHEST. J. U. Harris. C. P. Dadant.	Others voted for—Dr. Miller, G. W. York, A. J. Cook, A. I. Root, E. T. Abbott, W. Selser, G. M. Doolittle, R. C. Aikin, E. W. Whitcomb, R. Taylor, H. E. Hill, W. Z. Hutchinson.
VICE-PRESIDENT. C. P. Dadant. J. F. McIntyre.	Others voted for—Geo. Brodbeck, G. W. York, Dr. Miller, G. M. Doolittle, W. L. Coggshall, J. Hall, J. U. Harris, E. R. Root, W. McEvoy, O. L. Hershiser, J. Johnson, H. Moore, W. H. Laws, W. Z. Hutchinson, H. H. Hyde, R. C. Aikin, F. Greiner, F. Fouch, E. T. Abbott, W. Selser, F. Benton.
SECRETARY. W. Z. Hutchinson. Geo. W. Brodbeck.	Others voted for—W. H. Laws, S. A. Niver, L. Scholl, E. T. Abbott, G. Davidson.
GENERAL MANAGER. N. E. France. L. Scholl.	
DIRECTOR—To succeed E. W. Whitcomb. E. W. Whitcomb. H. H. Hyde.	Others voted for—F. Muth, H. E. Hill, J. F. McIntyre, G. Brodbeck, W. Z. Hutchinson, J. A. Green, J. Heddon, A. J. Cook, E. Pratt, W. Alexander, H. Mendelson, A. Carmichael, W. Stolley, E. Gannson, M. Dearby.
DIRECTOR—To succeed W. Z. Hutchinson. R. L. Taylor. J. Q. Smith.	Others voted for—W. Z. Hutchinson, G. Brodbeck, F. Muth, M. A. Gill, W. L. Coggshall, G. W. York, E. Secor, C. P. Dadant, H. Surface, J. Rouse, E. S. Lovesy, W. Cary, J. U. Harris, H. Mendelson, C. Stewart, E. Alexander, F. Rauchfuss.
DIRECTOR—To succeed U. Toepperwein. U. Toepperwein. E. S. Lovesy.	Others voted for—Dr. Miller, H. H. Hyde, J. Q. Smith, E. T. Abbott, F. L. Aten, L. Scholl, E. R. Root, F. Brown, W. H. Laws, W. O. Victor, H. S. Ferry, F. Benton, E. J. Atchley, W. O. Victor, G. Dittmer, H. Lathrop, Emma Wilson, C. Stewart, L. Stachelhausen, E. Atwater.

All nominations were counted Oct. 1 by N. E. France and E. F. Nehls, as per order of Board of Directors. (The above names are in same order as the number of votes received.) 160 members enrolled at St. Louis.

GENERAL CORRESPONDENCE.

THE LAWS BABY NUCLEI.

How the Bees of one Colony can be Used to Fertilize from 100 to 200 Queens; how to have Queens Mated to Select Drones; a Valuable Article.

BY W. H. LAWS.

Ten years ago it was thought that there was not much more to be learned about modern bee-keeping; but note the rapid strides in the lines of specialty, in the production of honey, the management of large and numerous out-apiaries, and in almost all lines pertaining to our pursuit.

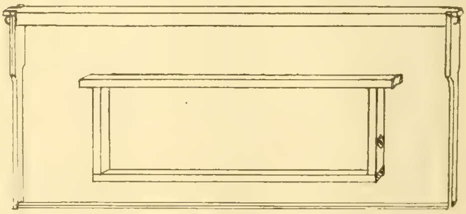
By the request of the editor I come bringing some new ideas on the wholesale mating of queens, a plan that will admit of thousands of queens being mated where only hundreds could be mated by the old methods now in use. By this plan I claim that any one colony of bees can be used to care for, and allow the fertilization, of from one to two or more hundred queens. Other advantages are:

1. It will permit of the use of virgin queens from five to seven days old, with practically no loss.
2. There is no loss from absconding.
3. We avoid all trouble from fertile workers.
4. We can control the mating of our queens to an almost absolute certainty.
5. We can proceed with the production of honey; and in order to raise large quantities of queens we are not compelled to break up into nuclei so many of our best colonies of bees as is done by the methods now in use.

For the past two seasons I have been practicing with great satisfaction to myself a method possessing all these advantages, and I think I can tell it so plainly that any bee-keeper who understands practical work in the apiary can use it. In the next place, we do not use any permanent nuclei, but we do use a lot of little baby nucleus boxes that contain a single comb of honey each. These boxes, when empty, weigh only a few ounces each, and the combs of honey that are made to fit these little boxes are 11¼ inches long by 4¼ deep, and are made purposely to hang crosswise in an eight-frame half-depth super.

After counting the virgins in our nursery-cages we prepare an equal number of the little boxes by placing a comb of honey in each of them; then we proceed to shake all the bees from the combs of some queenless populous colony, being sure to cause the bees to fill themselves with honey, placing the combs, when shaken, in an empty hive, and setting on the old stand to catch the returning bees, and to care for the brood. Now pick up the hive containing the bees, and repair to some convenient shady spot, where our boxes are waiting to receive the bees.

With a small tin cup dip from the cluster a small wad about the size of an unhulled walnut, which I think will not exceed about 200 bees; now let your assistant open and hand you one of the little boxes; pour the bees from the cup right into the box and on to the comb of honey; close the box; snap the hook; lay aside, and proceed dipping and filling until all the boxes have been filled.

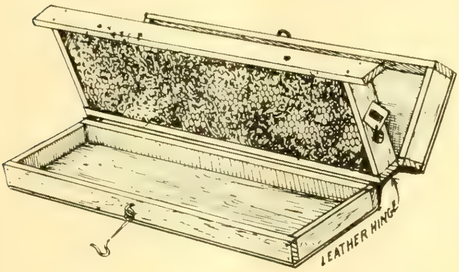


RELATIVE SIZES OF THE LAWS NUCLEUS FRAME AND THE STANDARD LANGSTROTH.

By this time the bees in the little boxes have discovered that they are confined, and every bee that can take on more honey has filled its sac to its capacity, from the comb on which it is confined, and they are now buzzing and roaring, seeking if possible to make an escape. It is while in this condition that we are ready to introduce the virgins, for a queenless over-gorged bee, frightened and away from her own home, is in very poor condition to sting, ball, or even notice a queen; but, on the other hand, judging from the general acceptance of these virgins, I imagine that some of those heavy-laden bees would begin to offer her honey at once. Introduce the virgins by running them in at the little ⅜-inch round entrance to the little boxes; but right here is an important point about the introduction of those virgins. Since my article on this subject in the *Review* of last March I have received dozens of letters making inquiry as to what time these virgins should be given. I will try to make this point plain.

Those bees, realizing their confinement, filled with honey, and their only idea that of escape, all the fight is taken out of them. They are roaring their song of distress; their excitement is at its highest. Right at this period *any sort of queen* can be given, and, ninety-nine times out of a hundred, she will be accepted. As to the length of time that should elapse after filling the boxes before the queens should be given, they can be run in after ten to thirty minutes of confinement. I usually wait until all the boxes are filled, even should there be two or three hundred of them before the virgins are given; but in no case wait over night, as one of my men did on one occasion, and lost 71 out of 72 queens.

Some years ago I discovered that almost any kind of queen would be accepted, provided she was given *immediately* after the bees have discovered their *confinement.* On one occasion, while making increase with strong three-frame nuclei taken from the strongest colonies with laying queens a number of virgins were taken from a colony that had swarmed and were holding back their virgins. These were hatching, and strong enough to fly, yet every one that was thrown into these nuclei was accepted, and at the proper time was found laying. I have also shaken bees into the baby nuclei from the upper stories of strong colonies, with a queen below the excluder, and after twenty or thirty minutes introduced virgins with safety.



THE OLD-STYLE LAWS NUCLEUS BOX OPENED UP.

We will now return to the little boxes where we left them with virgins all run in. They should be left lying in the shade until near sunset of the next day. By this time the bees have quieted down, the queen being one of them, and the honey from their sacs has been deposited in the cells, and they may now be hauled several hundred yards out of danger of robbers, the entrances opened, the little boxes scattered out through the brush, hung on the wire fence, lodged under or up in the forks of the trees, in any position, any side up, only be sure they are in the shade. These little nuclei, when distributed, with their virgin queens, behave very much like newly hived swarms. Every bee seems to regard that box as its home. A few bees will be found on guard at the entrance.

If the virgins are of the proper age, we may expect them to mate the very next day after setting them out. After the third day the little buttons may be turned until the zinc queen-excluding slot is across the entrance, and our queens are now safe, to be used at pleasure.

When another batch of virgins is ready our little boxes may be carried in, queens caged, and all the bees may be either returned to the hive from which they were taken, or they may be all put together on a new stand, and hived like a new swarm, allowing one of the queens to be shaken in with them. A frame or two of sealed brood from some colony that can spare it is given, and soon we have a colony of bees.

As I have told you how to mate a large number of queens by using the bees of only one colony, and also how to introduce virgins of any age with safety, I will now show

HOW TO AVOID LOSS FROM ABSCONDING.

It is a noticeable fact that a strong nucleus or a weak colony of bees will abscond much sooner than a weak nucleus with a bountiful supply of honey on hand; and when this absconding occurs it is usually after the queen has been mated and preparations have been or are being made for a perpetuation of their home. It is then, if their room is too large, their stores scant, or after brood-rearing has begun, that unrest and consequent absconding begins. With our little boxes and fat combs of honey the bees busy themselves moving the honey, clearing up a place for a brood-nest, and secreting wax with which they build spurs of wax from the comb to the walls of their box.

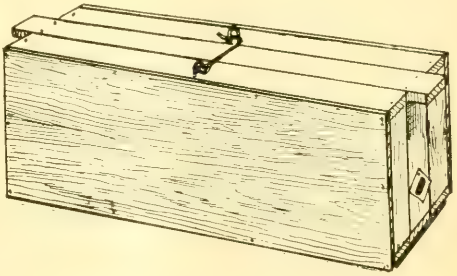
With these conditions they seem content, and it is very seldom desertion is known; but absconding is absolutely prevented when the queen-excluding button is turned. I have tested large numbers of queens as to purity of mating in these little boxes.

Now as to the prevention of fertile workers. There is no possible show for them to exist when a new lot of bees are used with each mating of the queens.

HOW TO HAVE QUEENS MATED TO SELECT DRONES.

The fifth and last proposition is that of the controlling of the mating of the queens.

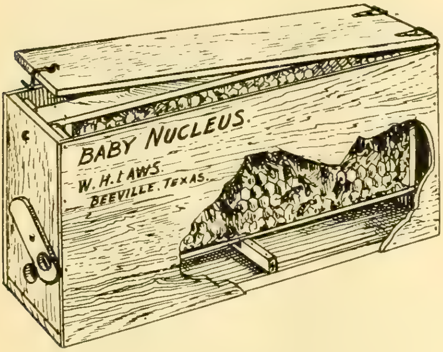
These baby nuclei are so transportable that 500 or more of them can be loaded on a wagon together with our hive of choice drones. Then we go out on the prairie three miles or more from any bees, set out the little boxes, and liberate the drones. If the queens are of proper age they should mate the same or the next day, after which they may be brought in and the bees and queens of another race may be mated on the same ground.



LAWS' OLD-STYLE NUCLEUS BOX.

I will now describe the construction of the little boxes, which, you will see, is a very simple arrangement.

Two little trays, ¾ inch deep, hinged together at the bottom with leather strips in such a way as to clamp between its edges a frame so tightly that it can not move the box closes with a hook and staple at the top, and the outside of the frame now becomes a part of the box. A $\frac{5}{16}$ or $\frac{3}{8}$ inch hole is bored in the frame near one lower corner of the frame for an entrance for the bees, as seen in the cut. While I have used this style of box almost exclusively for a year and a half, there were several disadvantages that I have tried to overcome in the construction of a later model. I made some 300, several months ago, of a pattern that I like much better, as it entirely encloses the frames containing the honey, and it has a tight-fitting water-proof cover. The frames fit in these boxes in such a way as to be tight-fitting, and can be hauled or handled any side up or in any position, as do also the other boxes. The principal objection to the old style of box was its bee-smashing qualities, its liability to take water in heavy rains, and its comb of honey being so near the outside that it afforded a greater attraction to ants and robber bees.


BABY NUCLEUS
W. H. LAWS.
BEEVILLE. TEXAS.

LAWS' NEW-STYLE NUCLEUS BOX.

On each of the boxes is placed a little queen-excluding button, one end solid, and, when not in use, is turned so the queen can mate. One end is used to close entirely the entrance; the other to confine the queen after mating to avoid any danger from absconding. There is a hook and staple attached to each of the little boxes that closes with a snap and holds all tightly and securely until released.

To get combs filled with honey, and to have them so as to be conveniently worked on the hives, frames of proper dimensions were made to fit crosswise in an eight-frame half-depth super. Second-quality combs, and those containing much drone comb, were cut out from the standard frames, and transferred into the little frames, 13 of which just fill a super, and an L. comb will exactly fill four of the baby-nucleus frames. These supers of combs are then set on any populous colonies, to be filled with honey.

I have 750 boxes of the old pattern, and 300 of the new model. I have also a thousand of the little combs of honey. With these I think it would be easy to mate two or three thousand queens per month.

Last season I used nursery cages and virgins exclusively; but I have found it more convenient and labor-saving at times to attach the ripe cells right on to the combs of honey just before the bees are poured into the boxes, then let them stay 48 hours before carrying out to the mating-grounds.

It is not always a necessity to change the bees with each mating of the queens. Ripe cells may be given as by the old method; but this would destroy the rapidity of wholesale mating, as it is intended the plan shall do. For good queens and quick work I favor the introduction of virgin queens from five to seven days old. When virgins are used we can select and throw out all scrubs before introducing to the baby nuclei.

My nursery cages are so constructed that two holding 20 compartments each are placed in an L. frame, and are so pivoted that the top of the cages remains right side up, no matter in what manner the frame is held. These 40 compartments are covered on the sides with wire screen, and the top of each is covered with a small waxed wooden cap to which the cell is attached; a $\frac{3}{16}$-inch hole is bored a half-inch deep in the bottom of each of the cages, which are coated with beeswax and filled with honey from a common clean oiler, to which the young queen may help herself as needed.

These nurseries containing cells are hung in upper stories of populous colonies containing laying queens, as queenless bees will select one or two, and worry the others to death; while colonies with laying queens will pay no attention to the virgins. I have a select mating-ground just half way between two of my breeding-yards. One yard contains 65 colonies, and the other 150. These yards are only two miles apart, and, although robbing may occur in or about the yards, and at times it might be dangerous to lift a few covers, yet I have worked half a day at a time, at this mating-ground, combs of honey exposed nearly all the time, but not a comb has been robbed nor have I seen a robber. This item of working with a seclusion from robber bees is worth much.

Are there drones at the mating-grounds? Yes, on afternoons I have heard the noisy fellows, and seen them in great crowds, evidently attracted there by the great number of queens; and I believe that a queen seldom leaves the mating-ground to find her mate.

On one occasion I left by accident a number of queens caged until 18 days old. I saw that a number of them had mated within two hours after distributing the nuclei one hot afternoon.

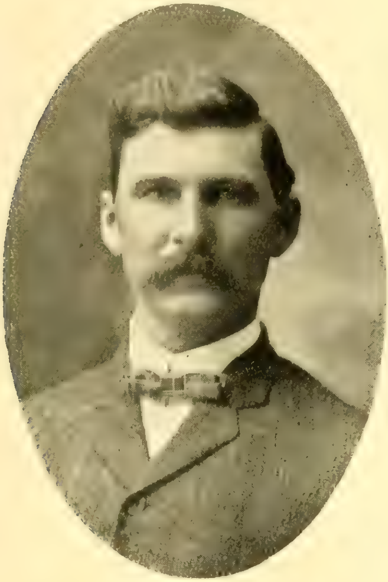
I have picked up these freshly mated virgins, and thrown them in hives from which I was taking cells, and in a few days found them filling their combs with eggs.

I can not see but there is as good a catch of fertile queens from the baby nuclei as from those of larger dimensions.

Last November 57 matured cells were given to as many nuclei, and they were hauled 15 miles to mate to special drones. I caged 51 queens from this lot.

Out of 338 baby nuclei placed on the mating-grounds at one time the latter part of June, I took 270 laying queens. Several queen-breeders have written me that they are testing this new method, and report successfully.

Mr. E. A. Ribble, of Roxton, Texas, writes me that, with the very first effort, he put out 25 baby nuclei and secured from them 25 laying queens.



W. H. LAWS.

The advantages of this new method are apparent. Queens can be mated by the wholesale, with few bees and little breaking-up of good colonies of bees; but by the old method many strong colonies had to be sacrificed in order to raise a few hundred queens. Now we use the bees of one or two colonies to mate hundreds of queens, and after their use for a few days they may be returned to the colony from which they were taken.

Beeville, Tex., Aug. 6.

[The honey-producer must not get the impression that there is nothing of value for him in this article; for, indeed, he can now, apparently, fertilize his own queens at comparatively small expense and trouble, and, what is more, select his best drones for the purpose ; and right here Mr. Laws comes pretty nearly, if he does not quite, solving a big problem—one that has puzzled bee-keepers for years.

The fact that our friend has had in successful use a thousand of these baby nuclei is a strong argument in favor of their practicability. This article will bear careful reading all through, as well as the following.—ED.]

THE USE OF SMALL NUCLEI FOR MATING.

Brood not Essential.

BY E. F. PHILLIPS, PH. D.

That small colonies of bees, not exceeding 200 in number, will care for a queen during her mating period is now a fact beyond dispute. Queen-breeders have used this method in an experimental way for some time, and generally ended by condemning the method; but of late there has been a revival of interest in this system, due mainly to the efforts of Mr. E. L. Pratt (Swarthmore). Mr. Pratt has used the small nuclei in his own yard with marked success, and has advocated the use of the system in the face of considerable opposition. Any one who says that the system will not work must either doubt the veracity of Mr. Pratt and others who do succeed, or acknowledge that he does not know enough of the habits of bees to make this system a success. Now that the A. I. Root Co. has been using the small nuclei, as had been reported in GLEANINGS; and since Mr. Laws, Mr. Weber, and others have been successful, it seems that the old full-frame queen-mating nucleus must now take a back seat.

The use of small nuclei requires considerable care, and, above all, no little knowledge of the habits of the bee. With a larger (two or three frame) nucleus any one can introduce a virgin queen and have her mated unless he does something so absolutely unnatural that the bees die; but with smaller nuclei, unless the bees are in proper condition the results will be poor. If this statement be considered by any one as an argument in favor of larger nuclei, then it is misinterpreted, for I do not care to advocate crude methods in apiculture. In the care of bees, every move of the bee-keeper must be founded on the natural habits of the bees; and unless he knows those habits well he will get results only *in spite* of his labors and not as a result of them. In small nuclei, as nowhere else, the queen-breeder must know his reasons for every move. Bees do not adapt themselves to unnatural surroundings and circumstances to any great degree, and therefore it is imperative that all things be in accord with their instincts. Having had the pleasure of seeing Mr. Pratt use these small boxes for some time I venture to give his methods. There is a reason back of every direction, for Mr. Pratt is a most careful observer, and knows his bees as few men do.

The ideal size for a mating-box, according to Mr. Pratt, is one that will hold two frames of a size to fit six to a standard frame, so that they hang sidewise. These frames may be made of section stuff, and hung to the hive-cover by hooks. The style of box, etc., is a matter of little import; but it is quite necessary that the *frames* be in some way interchangeable so that they may be put in large colonies to be filled with honey; and if of the size indicated, this may be easily done. It is best not to have any projecting corners on the frames, for these would prevent their being placed in a large frame.

To make up colonies it is best to use bees that have just completed a batch of cells, for such bees are normally ready to have their queen mate. This is not necessary, however. Put a small teacupful into each box, close them for six to eight hours, and then run in a virgin in each box. At evening remove the nuclei a mile or so, and open the entrances. Nuclei may be made up in an outyard, and brought to the main yard. After one day's flight the nuclei may be brought back to their old yard, without fear of their return to the old hive. Mr. Root says that these nuclei must be confined three days, and that was the method used at Medina while I was there; but this other method saves two days' time, and is a little less severe on the bees. Any queen may be introduced to bees that have been confined for six or eight hours, without the use of a cage.

To equip the small hive, use one frame filled with honey or syrup, and one frame with a triangular piece of foundation to keep the bees busy. After the first queen is mated and removed it may be necessary to feed. An ounce of feed every day or two will keep the bees working, and queen after queen may be mated from the same box until finally the original supply of workers becomes reduced, when it is necessary to make up the box again. Each queen will lay a few eggs in the box, and the supply of workers will thus be kept up; but I do not believe that any brood is necessary. In all the time that I was at Medina the small nuclei worked without brood; and while unsealed larvæ may be of advantage in keeping the bees in the box, yet I doubt if it is at all necessary that they be present.

To introduce a second queen in the box after a laying queen has been removed, close the entrance for six to eight hours; run in a virgin, and open at evening. By this method no introducing-cage is necessary. If desired, an introducing-cage may be built in the cover of the hive, as was done at Medina while I was there, or any of the numerous introducing-cages may be used.

I am glad to read in GLEANINGS that the small nuclei are not robbed. There is absolutely no reason why they should be, for bees with a queen will protect their hive, no matter how small their number.

The editor of GLEANINGS is to be commended for the stand he takes against the use of smoke on these nuclei; for if smoked with clouds of smoke from a smoker they will naturally be discouraged. Might it not be as well to carry over the same directions regarding smoke to the manipulation of larger colonies? How any one can expect bees to behave naturally after being treated to smoke as they often are is past comprehension.

To a bee-keeper the question naturally arises, "Will these nuclei pay?" In the first place, the cost of a small box with two small frames is very little as compared with a regulation hive with its frames; but granting that the bee-keeper has the hives, the question of relative expense is easily settled. If any one will consider the amount of honey that could be obtained from a large colony of bees in one season, and then think that, if these bees are divided up into two-frame nuclei, that surplus is lost, the waste of large nuclei is evident at once, One good colony will easily make 30 or 40 miniature nuclei, and still leave a good-sized nucleus for testing a queen, and that, surely, is a great saving of dollars and cents.

In the second place, when once the small nuclei are in use they are infinitely easier to handle, and much time is saved in finding the queen, in feeding, and other things which all colonies need. It is to be expected that there will yet remain many bee-keepers who will still refuse to believe that small nuclei are practical, simply because they themselves can not make them work; but I for one would scarcely care to take their word for the usefulness of the system after the evidence which I have had of the results that can be obtained.

Philadelphia, Pa., Aug. 26.

[We have found since our first report that brood is not necessary. Indeed Mr. W. H. Laws at the St. Louis convention made the statement that the "babies" were better without it.—Ed.]

THE PHILADELPHIA BEE-KEEPERS' ASSOCIATION.

Meeting Held at The A. I. Root Co.'s Apiary at Jenkintown, Pa., Sept. 10, 1904.

BY F. HAHMAN, SEC.

The weather was ideal for the occasion—warm and quiet, the sun partially obscured, with occasional gleams of bright light—a day to make both visitors and bees feel contented and happy.

The apiary was lately established, with much care and expense. The grounds have been laid out on the terrace plan, and appeared very attractive to the eye, with nicely kept lawns, and beds of cannas and other flowering plants, including a bed of large "flowering goldenrod." The colonies were strung along in straight lines, the hives neatly painted white, the whole presenting a pleasing and attractive piece of landscape.

The meeting was opened by electing Dr. L. M. Weaver chairman, the president and vice-president being absent from the city. The secretary read minutes of the previous meeting, which were approved as read.

Mr. John B. Parks was elected to membership. Mr. Wm. A. Selser, as The A. I. Root Co.'s representative, made an address of welcome. He stated that this apiary was for the benefit of all bee-keepers in the eastern part of the country, to demonstrate to them the advances made in apiculture from time to time, as improvements are introduced in bees and apicultural accessories and appliances, and to see that visitors are cordially invited to take advantage of the facilities thus accorded them for study and observation. Mr. Selser said that new races of bees from all over the world would be tested in this apiary, to determine whether they possess any characteristics of value to bee-keepers at large. He also stated that the colonies now on the ground were only a starter, and the number would be largely increased next season.

The meeting was now suspended to enable those present to see the bees. Hives were opened, and combs exhibited by Mr. Harold Horner, Mr. Selser's assistant. There were five colonies of bees with imported queens from Italy, of the leather-colored strain, three-banded. Mr. Selser also had a queen of the golden-to-tip variety under a magnifying-glass. He next gave a brief summing-up of the great expansion of the bee industry, now only in its infancy, but destined to become one of the important industries of the world.

On reassembling, Dr. E. F. Phillips, of Philadelphia, was called on to address the meeting on some of his observations of bee-life. Dr. Phillips made an able response, giving the results of his observations on the division of labor among bees. As his observations on this subject were published in GLEANINGS, p. 846, it is needless to go into particulars here. Dr. Phillips' remarks were listened to with much attention, and were greatly enjoyed by those present.

Mr. Selser gave an address on the good work accomplished against the adulteration of honey, and the strictness of the pure-food laws when applied to the sale of honey containing even the slightest admixture of foreign matter whatever. He cited cases in which he had acted as chemist in analyzing samples, and had invariably detected the forgeries, however slight.

A discussion was started to determine the amount of honey consumed by one colony during the summer season, aside from the surplus gathered. Many of the members expressed their views, although none were backed up by actual tests. The consensus of opinion seemed to favor about 150 lbs.

Overstocking was next discussed, in answer to a question from one of the bee-keepers present. No satisfactory answer was forthcoming, because none of the members were bee-keepers of any magnitude. The secretary gave some reminiscences of the address delivered before the association about a year ago by Mr. Moore, of Arizona, in which Mr. M. had stated that overstocking had occurred in his location in the irrigated alfalfa district.

Mr. John M. Hooker, of Philadelphia, late of England, was called upon to give his views. He said that bee-keeping in England is very different from that practiced in the United States. He said that their apiaries are small, but more numerous than in this country, consequently there could be no overstocking. Mr. Hooker also referred to his visit to the large apiaries of California.

The next question discussed was the quantity of honey produced around Philadelphia.

Mr. Mark Schofield, of Philadelphia, said that a good average for the southern section of Philadelphia is about 80 lbs. per colony; sometimes, in good years, 200 lbs. would be produced. The meadows south of Philadelphia produce vast crops of fine light honey in the fall of the year.

Mr. Geo. Cullom, Spring City, Pa., about 30 miles northwest of Philadelphia, considered two supers of comb honey (48 sections) a good average. Mr. Harold Horner said that 50 to 60 lbs. per colony has been the average with him in Mt. Holly, N. J. He has had as high as 150 to 175 lbs., all extracted.

Mr. Selser said 50 lbs. is considered very good for North Philadelphia.

Mr. E. L. Pratt, of Swarthmore, Pa., was the next speaker. Mr. P. said that, two years ago, he gave a talk and demonstration before the association, to show how queens were forced to lay eggs in his artificial queen-cell cups. Since that time he has found that queens would lay eggs in the cups from choice. He found that young queens, after mating, would invariably lay eggs in the cell cups from which they had hatched. In one instance he had taken up bees into the swarm-box, to remain for six hours, and had taken up their queen with them by mistake. He found that the queen laid eggs in 32 of the cups, thus proving that she must have taken them for natural cells. Mr. Pratt also exhibited his new shipping-case for nuclei. It is a model for light weight and cheapness. It is constructed of pasteboard, such as is used in making book-covers; is nailed over a skeleton framework of wood, with wire gauze over both ends, and a space of 1½ inches at these ends for these bees to cluster in. A neat handle is attached over the top, the whole package resembling a suit-case used by travelers. These cases are handled by the express messengers with the same care that suit-cases are handled, and, in fact, are stacked in the cars with the other suit-cases, never on their sides, handle always on top. Mr. Pratt has successfully shipped nuclei to Europe in this package. He has also made hives of this material, and wintered bees in them successfully during the late cold winter.

Eight candidates were nominated for membership in the association.

A vote of thanks was tendered The A. I. Root Co. and its manager, Mr. W. A. Selser, after which the meeting adjourned.

STRAWS FROM THE WEST INDIES.

BY W. K. MORRISON.

There is a popular notion that honey is a specific in the treatment of consumption. Recent discoveries tend to establish the truth of this. Dr. Weber, a German authority, regards levulose (or honey) in conjunction with other means of treatment in the light of a specific. He recommends 4 to 6 tablespoonfuls with every meal. In the initial stages of consumption this is successful in the majority of cases. The result is due to the levulose oxydizing into a form of carbonic acid. Paste this in your hat, and credit *Therapeutische Monatshefte.*

The fact is well known that honey is good for infants, particularly those who do not seem to thrive satisfactorily. If honey (or levulose) be given, the increase in weight is as much as 300 to 400 grams per week. For this purpose it is superior to milk sugar, and it is sweeter and more palatable. It is no less valuable as a nutrient in the case of older children. So says Furst, in the *British Medical Journal.*

Subscribers to GLEANINGS who live in the tropics, and who have not read Mr. C. E. Woodward's article on Cuba, p. 700, should make haste to do so. It is just right for other tropical countries as well as Cuba—perhaps more so.

Concrete sugar is the best for feeding bees, as it contains the natural wax of the sugar-cane, and is free from all chemicals.

Porto Rico will lose its trade in sugar with the bee-keepers of Europe who used to feed its muscovado sugar. The sugar-estates are being made up-to-date to produce white sulphuric-acid sugar. Amen!

Of the large islands in the West Indies, Porto Rico is the most backward in the matter of bee-keeping. As the colony has been under the American flag for some time, this seems the more remarkable.

Peru has probably more apiaries of stingless bees than any other country. The honey from this source is thought to be superior to any other for medicinal purposes. It seems very probable that the Incas had these bees under domestication for ages before Columbus.

The nearest modern apiary to the equator is away down on the Corentyn River, on the confines of Surinam. The proprietor is a Belgian named Franck.

Comb honey has been shipped from Trinidad to England, where it arrived in first-class condition, and realized fair prices. This is a record, so far as the West Indies is concerned.

The honey season in the tropics is the dry season. It rains too steadily in the wet season to allow bees to gather a surplus. In Trinidad the honey season extends from January to June; in British Guiana the period is July to December, though the distance which separates them is only 200 miles. Here is a good chance for migratory bee-keeping if transport becomes cheap.

Mr. Powell, the former genial curator of the St. Vincent Botanical Experiment Station, who takes a lively interest in bee-keeping, has taken charge of a station far away in British East Africa. As there are plenty of bees in that country, probably he will soon start an apiary having all the latest appliances, as an object-lesson to the savages of that region.

The Canadian commercial agents having investigated the subject, report the British honey market preëmpted by West-Indian and Chilian honey. This is good, as the Canucks levy a very high tariff on West-Indian honey. It is a poor rule that doesn't work both ways. If Canada won't buy our honey we won't buy hives up there—so there!

Buenos Ayres, with 800,000 inhabitants; Sao Paulo with 350,000, and Rio de Janeiro with 400,000, ought to be good markets for honey, as the people have the cash, and are not averse to eating nice foods. These cities are not behind North-American places in general appearances. Beeswax is eagerly sought for to make church-candles.

Around Bogota, E. U. Colombia, are large areas of alfalfa, which readily accounts for the ease with which honey is secured in that locality. Wheat and other temperate crops are also grown to perfection, which makes living cheaper than elsewhere in Spanish America.

The ackee fruit-tree is an excellent bee-plant; and where common, as in Demarara, it ought to prove a fruitful source of honey. Mammee sapote is also a fair producer, but not equal to the ackee.

A kind of borage is an excellent honey-producer in Trinidad and other West-Indian islands, and might with advantage be introduced elsewhere.

So far as the tropics are concerned, cypress is much superior to pine from almost every point of view, more particularly for its lasting qualities. A hive-stand made of pine is of little use in moist countries with heavy rainfalls—that is, 60 to 150 inches per annum.

A good many tropical bee-masters would appreciate a recipe for making honey-cakes similar to those made of sugar and shredded cocoanut. They can not have solid honey, for obvious reasons; but a honey-cake would suit if it is cheap and good. The pickaninnies of the West Indies have a very sweet tooth that must be gratified; and with a "mamma" to tote the cakes around, the sale problem is simple.

CALIFORNIA NOTES AND COMMENTS.

Honey Consumption; Redwood Hives; Baby Nuclei, etc.

BY W. A. H. GILSTRAP.

When reading a paper I frequently mark points of special interest with a blue crayon. GLEANINGS gets many such marks, and my ideas on some of them may be of interest.

Page 188, to kill a skunk I take a pole somewhat heavier than a fishing-pole, and whip the animal to death on short notice, on a moonlight night. Lately I dispatched two fine skunks in less than three minutes by this process.

Amount of honey used by a colony (page 376) will never be known. The quantity fed a colony during a dearth is no test, as, during a flow, owing to more exercise, bees use much more honey. In this country they evidently use over 100 lbs. per colony on an average.

It is my belief that lizards kill bees (page 658); but as they are timid they would rather watch the apiarist than kill bees in his presence. It could be expected that a lizard would lap a bee up as quick as a flash or not at all. They often take refuge in a hive, and are frequently found dead there—probably stung by the bees. For several years I have killed them on suspicion.

On same page there is a report of two queens in one cell. Frequently, when grafting with very small larvæ, I could not be quite sure that the larva was landed safely, and another one used, which has resulted in two larvæ being kept in the cell for several days. While I never knew two queens to mature in one cell, it is not surprising that it should occur.

Pages 687, 688, twenty-pound stones, or stones of any weight, could hardly be as handy here as to put a brick on a hive. They are a convenient weight to handle, and heavy enough to hold the lid. It pays to have a weight on hives where only flat covers are used. With the wind we have here, shade-boards are out of the question unless the apiary is in a protected locality.

Pryal's article, Aug. 1, reminds me of some unpainted redwood hives which I used for kindling four or five years ago because they were an undesirable size and shape. If my recollection of their history is correct, the older ones were in use before the 1862 flood, and the newest ones were made about 1863, and they might have lasted 70 years longer. The corners were put together in ordinary box fashion, and had kept in much better order than some comparatively new Dovetailed hives that I once handled that were made by one of the largest bee-supply firms of the world. The old hives had never been handled much; even the frames had been at rest nearly all the time.

Such hives, however, are not able to stand the rough usage that pine can. This is especially true of the frames. The delicate "ears" of a Hoffman frame would not do at all if made of redwood. But I never saw a Hoffman frame that I cared much for, any way.

Had p. 798 reached me before I tried the baby nuclei, perhaps the puzzle would have been too much for me. It doesn't seem possible to make a success of them with brood in the comb.

As I had been using combs 4¾×7 inches—four to the hive—it was natural enough to use the same comb for the baby nuclei. No brood was used. So far as tried, they were a success; but a more extended use might change matters. The bees were confined one day, and were brought from an outyard. Little honey was coming in at the time, and none of the "babies" were fed. They look too contemptibly little to be worth smoking, and one can almost grin so small an establishment into submission.

One thing more about the little "fixins." As some of the bees insisted on getting in the joint of the hive (my first trial was from Mr. Laws' write-up in the *Review*), I tried some made like a regular hive (smaller of course), and closed it by placing a small stick on each side of the top-bar after the frame was in place. This simplifies construction, and suits me better in use.

Modesto, Cal., Aug. 29.

Heads of Grain
from different fields

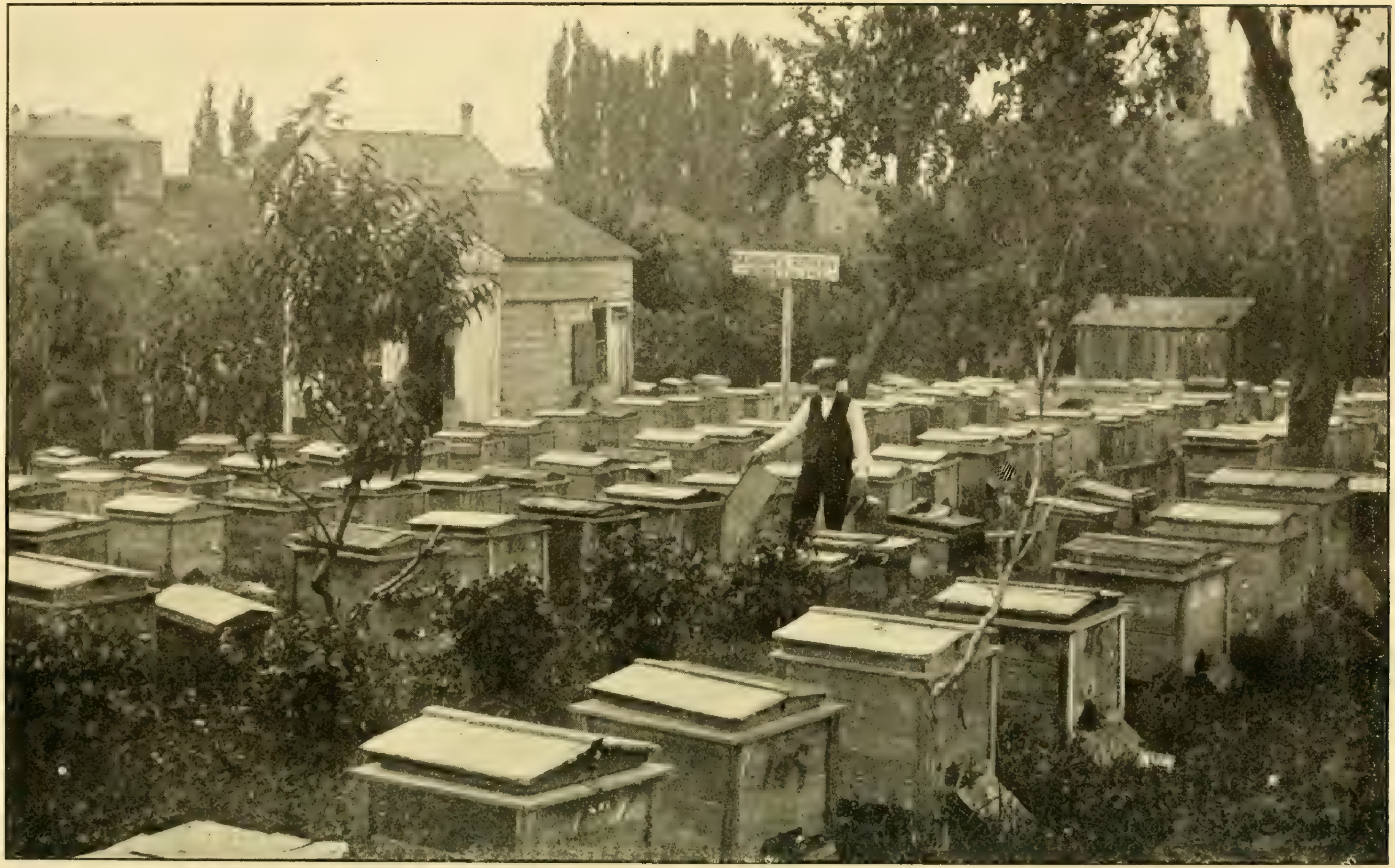
SELLING AMBER COMB HONEY FOR WHITE CLOVER; THE DAMAGE SUCH PRACTICE DOES TO THE COMB-HONEY BUSINESS.

Why is it that some honey which is said to be white-clover comb is of a golden yellow color? Others which I raise myself, and know to be white-clover honey, is a pure white. Is it true that some people feed molasses to their bees, and that makes the yellowish effect? I have tasted both kinds, and there is a decidedly different taste between them. I sold a crate to a grocer here, and in a few days went in to see if he had sold any, and if he had heard how his customers liked it. He told me that one lady came back and said that she positively could not eat it. I don't know why, for I surely have not had any other complaints like it. The grocer said that it was not white honey, and showed me some from the country, which was yellow. He called it white-clover honey. I suppose his customers had been so used to getting molasses-fed honey that, when they did get the real article, they did not know it. Of course, I will not say that the yellow-white honey is molasses, as I do not know, and am asking your advice with regard to it. I know, as I said before, that the honey which I raised is from white clover, and it also looked white too. What made me angry was that the grocer said it looked like paraffine comb, or manufactured honey. H. F. CARL.

Washington, D. C.

[Regarding your question I would say that white-clover honey, strictly speaking, is white honey. Of course, it is not absolutely snow-white, but it is as white as most honey. Comb honey of a golden yellow may be a mixture of white clover and some other source. There is a carelessness on the part of dealers (perhaps it is dishonesty) in some cases in selling off grades of honey as white clover. People buy it, it does not taste like the white clover they have had before, and they conclude that it is manufactured.

I do not believe there is any one feeding bees molasses to get sections of comb honey filled out. If such persons were dishonest enough to do a thing of this kind there would be more "method in their madness."



BARNUM'S CHAFF-HIVE APIARY, KINCARDINE, ONT., CAN.

They would feed granulated-sugar syrup, which would give a white honey rather than an amber. There is a great deal of poor comb honey on the market — that is, amber and dark; and some of it, we are sorry to say, is sold for white clover. This is one of the things that help to keep these canards going. — ED.]

A CHAFF-HIVE APIARY.

Broadway apiary is owned by me, and is run for extracted honey by my wife and myself. It consists of 230 hives, mostly two-story Langstroth frames, using excluder and a set of honey-comb kept for the honey every season exclusively. I never keep queens over two years old. They are all clipped, and a record kept. We control increase by putting back as far as possible. My wife was induced to come out and help me in the apiary, partly for want of health and partly for her help; and the outdoor exercise has built her up so that she outweighs her husband at present. We have mastered the winter problem, and I may some time give our experience along this line.

C. W. BARNUM.

Kincardine, Ont., Aug. 27.

PLURALITY OF LAYING OR FERTILE WORKERS IN A HIVE AT A TIME.

In GLEANINGS of January 1, 1904, I came across the following: "If any one else has seen a plurality of fertile workers in the act of laying, I wish he would hold up his hand." Well, right here I stop and hold up both. I had two hives that went wrong; and on looking for the cause I found traces of laying workers; after a while I caught them in the act, killing as many as 20 at a search, and on examination I found in every case an egg ready for laying. In one hive I took as many as 27 eggs from one cell, and in the other hive as many as 34; what comb they did have was covered with cells full of eggs, many of them having eggs stuck on the sides and top, and, what is more, I have taken as many as 5 larvæ out of one cell. Some of the eggs hatched out into fine drones. I have fixed one hive all right, having got a new queen reared, but am having a job with the other, which has reared an unfertile queen out of 13 fine queen-cells. What remedy is there? GEORDY.

Shanghai, China, June 24.

HIVING A SWARM ON THE OLD STAND; WAS IT A FAILURE?

I made an error at swarming-time this year which will probably result in the loss of a fine colony; and, while it is likely that many have had the same experience, there may be some whom my mistake would benefit.

The most up-to-date bee-keepers here hive their swarms on foundation on the old stand, and set the unfinished super or supers on the new swarm at once. This I have done for two years, and it has always worked nicely, as the bees would finish the sections quickly, go to work in the brood-nest, and, if the flow continued, become a fine colony in a few weeks. This year I hived a swarm as above, and set over two half-filled supers. The queen went "up-stairs" immediately and began to lay, and I soon had 56 sections containing a mixture of honey, brood, and pollen. The queen is still in the sections, and there is not a drawn cell on the foundation starters below. I will see that they have plenty to winter on, put them in the cellar, and, if they live, will shake them out in the spring and build them up. I see plainly now that the plan of setting the supers on the new swarm is all right, only it should not be done until the brood-nest is established. C. G. FRANCIS.

Marion, Ohio, Sept. 20.

[One swallow doesn't make a summer, neither does one failure show that the plan was necessarily wrong. While, perhaps, it is safer to use full sheets of foundation in the brood-nest instead of starters, yet in the great majority of cases hiving on starters and putting supers on immediately does not force the queen into the sections. As a rule, queens don't like to lay in small shut-up compartments like sections. — ED.]

THE 20-LB. STONE A NECESSITY TO HOLD DOWN THE COVER.

That 20-lb. stone is necessary, for we must have something to hold the covers on until the bees get them stuck fast. There may come up a strong wind right after you have had a hive open, and off goes the cover. I have tried it, and I have no cloths under the covers. I use bricks, which are as handy as stones to have on the covers. I can turn them in so many ways to indicate the condition in the hive that I don't know how I could get along without it. It is right before you all the time, and beats the book. When I get to the beeyard all I do is to look at the bricks, and I know then what to do. DANIEL DANIELSEN.

Brush, Colo.

[A brick is all right to hold covers on where there are liable to be strong gusts of wind. If it is heavy enough, why have a 20-lb. stone? It is the big back-breaking stones that, it seems to me, must increase the labor of a bee-keeper in the height of the season enormously. — ED.]

DEATH OF ONE OF THE OLD PIONEERS IN BEE-KEEPING.

I have learned with deep regret of the fall of another of God's noblemen. Our friend and brother in apiculture, J. A. Golden, of Reinersville, Ohio, died Lord's day, Sept. 11, leaving a wife surviving, deserving of and to whom our sympathy is extended.

Addison, Pa. J. G. HARTZELL.

[Mr. Golden will be remembered as the inventor of a section-cleaner, illustrated on p. 386, 1898. At this time, much attention was paid to that matter, and J. A. Green refers to it in last issue. Mr. Golden added a good many practical ideas to bee-lore, and we regret his loss.—Ed.]

SOME OF MY LITTLE WHIMS.

The best brush to use among bees is a wing from a hen or a hawk, or any bird not too large or too small. A right-hand wing is preferred.

The best scraper for removing wax or propolis is a shingling-hatchet, not too sharp, and without a handle. Such a tool is just right for weight and shape.

The best smoker fuel that I can get is old dry cow-chips. They burn steadily, and make plenty of smoke.

To start a smoke I have a box of primers. To prepare the primers I take old calico, and make patches about four inches by six, and tie a loose single knot in each one, leaving the ends projecting for quicker lighting; then I soak them in saltpeter water, not too strong, and lay them up to dry. When dry they are easy to light with a match, even in a wind. When lighted, drop it in your smoker and pile in the fuel.

I must relate a little of my experience that to me, at least, was surprising. I was holding in my hand a piece of brood comb. I saw a young queen cut herself out of a cell. She then walked a few steps and put her head into a cell of honey and commenced drinking, and almost at the same instant she commenced piping. Both operations continued without either one interfering with the other. J. A. Barber.

Chuluota, Fla.

[The idea of having primers, or having the fuel itself made ignitible by the use of saltpeter, while not new is valuable. Dr. Miller uses rotten wood that has been soaked in saltpeter water, and dried. W. L. Coggshall uses old phosphate-sacks rolled up and tied. These rolls are just large enough to go into the smoker-barrel, one end being dipped in saltpeter water to facilitate igniting. It is my opinion, based on the experience of our men, that this old phosphate-sacking is one of the best fuels that has ever been suggested. It ignites instantly, and gives a lasting and pungent smoke.

A queen or bee does not emit sounds by means of the mouth for it is not a breathing organ as with us but an orifice through which food is received. It was at one time supposed that the noise was produced by the wings, because a very rapid vibration of them can be noticed; but if the wings are cut off close the queens can pipe just the same. Just how the sound is produced is not yet definitely settled.—Ed.]

A DRONE-LAYING QUEEN.

I have one colony of bees that has a drone-laying queen. She lays a few eggs in two different brood-frames so that there is sealed brood all the time; but I can not find the queen. I dare not buy a queen lest this drone-layer kill her. How am I going to get rid of her? There is not honey enough in the hive to winter the bees, but there is more than I want to waste on them. Can I shake them in front of a hive where there is a laying queen, and have them received if I make the bees in both hives smell alike?

Will the drone layer be apt to kill a valuable queen? Mrs. J. B. Blakely.

Neenah, Wis., Sept. 27.

[A colony with a drone-laying queen should be removed immediately. The bees, what there are of them, less the drones, should be united with some other colony. It may be advisable to use a little tobacco smoke to prevent fighting; and if the queen is a valuable one she should be caged, although the probabilities are she would not be molested. —Ed.]

BEES AND RHEUMATISM; AUTOMOBILES AND HORSES.

I am now 77 years old, and have handled bees almost all my life, as my father kept bees ever since I remember. I was not only stung by honey-bees, but wasps, hornets, and yellow-jackets. About two years ago I hived a swarm of bees, not having gloves on; and in shaking down, the bees dropped on my bare hands, and they stung me terribly. Every few days through the summer I get stung by bees, and yet I have the rheumatism so badly that my fingers draw all out of shape, and I have rheumatic pains almost all the time.

In regard to the "mobile," those people who are so terribly afraid of them must not come to Lansing, for there are about 40 in use in the city; you meet them almost everywhere, and I have heard of no horse running away yet on their account. Women and even young girls run them in the city and country. When the factory is completed they will turn out about 35 finished machines per day.

In regard to using an auto to go to church on Sunday, I think it is more humane and Christlike to bring your auto in play than to hitch up your horses and drive them four or five miles and let them stand two to three hours in the hot sun for the flies to torment. Of course, I do not believe in taking business or pleasure trips on Sunday with any vehicle.

Lansing, Mich., Oct. 5. Isaac Parker.

[There are different kinds of rheumatism, and different individuals are differently constituted. We have had favorable and unfavorable reports regarding the value of bee-stings for rheumatism, so that we must conclude they cure some and not others. See editorials in this issue.—Ed.]

HOW TO KEEP ANTS AWAY FROM HONEY WITH TANGLEFOOT FLY-PAPER.

Ants will not put their feet on tanglefoot fly-paper. Put pieces three or four inches square under each table leg, or two or three sheets under the lower super of honey when you are stacking them up, and ants can't get into the honey or reach any thing on the table. J. L. Hyde.

Pomfret Landing, Conn., Aug. 20.

HOW OLD MUST BEES BE TO GO TO THE FIELDS?

I think, with Dr. Miller, that the notion that bees must be at least 17 days old to be of any value during a honey-flow is a mistake. When a colony has been queenless for some time, there is always a rapid increase in the number of field-bees as soon as the new brood begins to hatch, long before any of the young bees can appear as outdoor workers. I requeened several colonies under just those conditions this year, and watched them closely after the twenty-first day. I confess I was rather surprised to see the field force just about double in the next ten days. The explanation is, of course, that some of the older bees are kept at home to do the housework, and are released for field duty as soon as young ones hatch to take their places.

Mr. Phillips' contention, that young bees stay at home because they can not see to go to the field, may be all right. But why is it that bees five days old will gather pollen when there are none older in the colony? They will do that, I am pretty sure.

Newman, Ills. C. F. BENDER.

A RAGING FIRE IN A BEE-YARD.

I write you these few lines to let you know how well a good stock of your red-clover queen I got of you behaved during a fierce fire that almost wiped out my apiary Sept. 10. It broke out in an adjoining storage-shed of a paper-mill, which burned with such rapidity that I could not remove the bees, as it was about noon when the fire broke out. In a few minutes some of my strongest colonies were on fire, the covers burnt off, and the combs in the top stories were melted and the bees suffocated. There were thousands in the air when the firemen arrived; but I went with them and instructed them not to upset with the stream the hives, which they did not, and none of the firemen were stung, nor spectators. I am sorry I could not get you a photo; but the next day the remaining bees cleaned up the honey that was left, and this week I have got them in shape to try bee-keeping again, as I have had experience with flood in my apiary; but I would rather have six floods than one fire. It is surprising what heat some colonies can stand, and survive. Your queen survived the fire. I harvested my crop in July, which was very good. The bees were not insured.

Bridgeport, Pa. WM. H. EARNSHAW.

A TRICK WORTH KNOWING ABOUT KEEPING BOTTLED HONEY FROM LEAKING.

In keeping extracted honey in Mason or other self-sealing glass jars there is always some trouble from leakage or "creeping" of the honey over the edge of the jar. This soon spoils the neat clean appearance of the jar, besides making the handling of it disagreeable. I think I have discovered a cure for the trouble—at least one that works satisfactorily with me. I have not given it publicity, mainly because it may not work well in careless hands. Here is the remedy: I take paper of suitable kind and thickness, and coat one side with beeswax. Cut it in disks to fit in the jar-covers without falling out. I put the waxed side out, or so as to be next the jar. Put a rubber on the jar in the usual way; put this cover on, and screw down fairly tight. This disk seals the jar at the top, preventing any honey from running over the edge when tipped. This is the honey that creeps out, as it can not get back into the jar when once over the edge; and any thing that will seal the jar at the top is a cure.

The object of this letter is this: If you think the matter is of sufficient general interest or benefit for you to make these paper disks as an article of bee-supplies, do so. The greatest trouble is the coating of the paper and the cutting of the disks by hand.

N. P. SELDEN.

Belle Plaine, Iowa, March 21.

[We should be glad to make them if there should be a call for them; but the variety of styles of jars, as well as of sizes, would make it difficult to keep an assortment.—ED.]

HONEY-DEW; APHIDES AT THE VERY TOP OF THE TREE.

I have been reading what you say in the A B C book in regard to honey-dew; but we have a kind here that put me at a loss, and have had it for about ten days. What puzzles me the most is, we have had three of the hardest rains we have had for years, and the honey-dew comes just the same. This morning the trees were just soaking wet, but the bees were working as if on basswood. It is mostly on the red oak. It is of a very high color, but has the flavor of all honey-dew. It is an impossibility for one to find an insect of the kind you say always appears when there is honey-dew. I have been talking with three other bee-men, and they are having the same experience. Now, what I should like to know is, will this honey be fit to winter bees on?

E. EVELAND.

Barneveld, Wis., Sept. 18.

[The fact that you do not see the aphides or insects that secrete this honey-dew does not prove that they are not somewhere present in the tree, probably at the extreme top. By reading over the item on "Honey-dew" in the A B C of Bee Culture you will see that these insects are often at the very top of the trees. The saccharine exudation is thrown off in a spray, drops on the lower limbs, dries up, and, after a rain, is moistened up so that the bees can gather it. If you make a further investigation you will probably find the aphides at the very top of the trees. Generally honey-dew is an unfit winter food. Still, bees very often, yes, generally, winter on it well.

Later.—Since writing the foregoing, Mr. Eveland says he has been to the tops of the trees, and that there are no aphides there;

that the honey-dew he finds is a saccharine secretion from the buds. This is probably correct.—Ed.]

QUESTIONS ANSWERED FOR A CUBAN INQUIRER.

Before me lies a letter from a correspondent in Cauto, Cuba, under date of Aug. 19, wishing me to answer the following questions. Seeing your articles in Gleanings, he says:

1. Is it a good plan to feed from now on till the honey-flow, about October 1?

2. Would you advise me to go to the expense of getting full sheets of foundation, or having them made from starters?

3. What is the best thing to ship my honey in? Where can I get the best price for it?

4. Where can I get the best breeding queens?

I replied:

1. One should feed his bees from the time they commence until they meet the natural honey-flow. If feeding be shut down before the honey-flow comes, all the feed is lost.

2. By all means use full sheets of foundation every time. The poorer you are, the more foundation you can afford to use.

3. The best package for extracted honey is the white iron drums holding about 60 gallons each. This package is a new thing, and is as good as it is new, and is much safer for long rough shipments than any other package in the market, and is not injurious in the least to the honey. If your honey is a No. 1 article, and you are a heavy honey-producer, I would advise you to ship your honey to Hillworth & Co., New York. But your honey should be well ripened before shipping it.

4. You can get fine queens of The A. I. Root Co. C. E. Woodward.

Guanabana, Cuba.

MAMMOTH SUNFLOWERS FOR SHADE, AND SUNFLOWER SEED FOR CHICKENS.

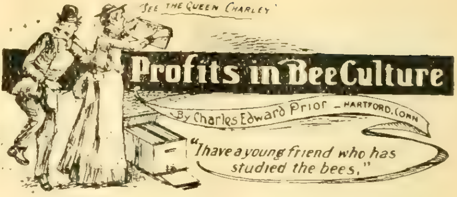
As a part of my bees are exposed to the sun, which is too hot for best results here in Colorado, I have planted mammoth sunflowers on the south side of each hive, and am very much pleased with them. Of course, I strip off the leaves up to the top of the hive. I also find the seed splendid for chickens. The variety I have had flowers last year that measured 19 inches across. I call them my umbrellas, which they very much resemble. W. C. Evans.

Fort Collins, Colo.

Is it an uncommon occurrence for bees to be broodless in September, located in North-central Ohio? All bees in this locality at present, and for the past three weeks, have been broodless. W. C. Haines.

McComb, Ohio, Sept. 26.

[It is not an uncommon occurrence for bees to be broodless in September; indeed, it is a normal condition.—Ed.]


"See the Queen Charley"
Profits in Bee Culture
By Charles Edward Prior — Hartford, Conn.
"I have a young friend who has studied the bees."

I have a young friend who has studied the bees,
And can tell all about them with marvelous ease.
She talks of the workers, the drones, and the queens,
And you can't say of her that she "doesn't know beans,"
For she does; and whatever this girl hears or sees
Sets her tongue running fast on the subject of bees.

"There's a bee in her bonnet," I know by the sound,
For there's plenty of buzzing when she is around.
And she'll wax very eloquent, telling how *money*
Will roll in as soon as she markets her honey.
I really believe she will meet with success,
And that I'd like to help her I'm free to confess.

A worker herself, she is bound to succeed
In the culture of bees; and 'twere folly indeed
To try to induce her to give up the scheme,
For she says, "I'm persuaded that this is no dream."
So she hums to herself (she is only ninteen),
And holds fast to her plan with the grace of a queen.

I wish she would notice that I'm not a drone,
And pity me, knowing that I live alone!
I will play "busy bee," keeping ever in sight
This sweet apiarist in whom I delight.
I'll buy her a comb; and after a spell
I'll arrange for her comfort a right royal cell.

Perhaps if a bad bee would sting her some day,
She would fly to my arms for protection, and stay.
If she doesn't, I'll wait till the swarming-time comes
When folks run about beating tin pans and drums,
And then I'll be certain to capture this queen,
To reign o'er my hive and make all things serene.

OUR HOMES,

BY A. I. ROOT.

No good thing will he withhold from them that walk uprightly.—PSALM 84 : 11.

I presume almost every one of our readers has at times been startled by the recent wonderful achievements in science, in the arts, and in mechanics. When I was but a child people were talking and holding up their hands in astonishment at the advance of the locomotive. A little later one of my schoolmates said, "On the way to Akron there is a lot of folks putting up wires on poles. On top of the poles there is a cross-piece like the letter T, and some of the poles have two or three wires. What in the world are they for?"

Just one boy in the lot was able to explain that people talked through those wires; but his explanation was received with a shout of contempt. "Talking through a wire!" Then a general exclamation of derision followed, because of even the idea of any thing so ridiculous. A few years later, when I became crazy on electricity I went around to the schoolhouses showing a model of an electric engine operated by a battery, and I predicted that, in just a short time, say three or four years, electricity would supplant steam. Instead of three or four years, however, it took thirty or forty years. During this period there were various inventions and improvements in the lines of both electricity and steam. When the boy Edison began to startle the world I was full of interest and enthusiasm. At our prayer-meeting last Saturday afternoon our pastor said it was his belief the Holy Spirit was giving the world these great inventions; and he asked the question, "Does anybody know whether Edison is a professing Christian?" I said I believed he was not at the time of many of his great discoveries; but that, if I was correct, he married a devoted Christian woman, and soon after, probably through her influence, united with the church. Soon after, Marconi came with wireless telegraphy and startled the earth. Then Prof. Currie and his good wife (perhaps I ought to say Madam Currie and her *good husband*) gave to the world radium, startling and upsetting some established points held by the greatest scientists of the world. Well, we have not yet quite caught our breath since radium has come on the stage. We are waiting for the united scientists of the world to tell us what it is and what it is good for.

Now, then, is there a man or woman of average intelligence, and one who loves God, who has not been startled by these new and wonderful achievements? I should prefer to say *gifts* from God, and I presume a few, myself among the number, are beginning to believe that the great Father has some special purpose in this period of the world's history of opening his hand, and showering forth these new and precious gifts. I did not mention the telephone; but not a day passes that I do not start and almost tremble when I take in the fact that we are now talking to each other face to face, almost *oblivious* of distance. *What is coming next?*

This has been ringing in my ears for some time. I do not know how many other ears have caught on to that question or a similar one; but I think there must be a good many, especially those who love and reverence the great Ruler of this mighty universe, the loving Father, who perhaps also feels a thrill of gladness when we express to him our thanks, and recognize him as the great giver of all good. And now for our text.

Some may urge that these good things are, many of them, sent to those who do *not* walk uprightly; but may it not be true, dear brothers and sisters, that God thinks best to send his Holy Spirit just as he does the gentle rain, on the just and on the unjust? Yet it pains me all the same when I see the automobile mostly in the hands of those who recognize no God.

May be I am making a little mistake right here, and perhaps they *do* recognize God in some sort of fashion. But what hurts me most is that they seem to make no sort of recognition of his holy sabbath or his will concerning it.

Now just a word to those who say that great inventors are not all known as professing Christians. In my list I omitted the submarine cable; and while I recall it to mind (for I remember distinctly the years of hard work and almost a mint of money expended before it was a success) I remember with joy that Cyrus W. Field was a devoted Christian; and so were Morse and Franklin; and we should not forget Swammerdam, who knew so much about bees; and the list might be continued indefinitely. Well, friends, what *is* coming next? When somebody told me we were to shout so as to be heard across the ocean, I was startled again, and said to myself, "What *is* there in the future that *can* be more wonderful?" I need not tell you of the progress that has been made and is being made every day in more rapid transportation of individuals. For a long period a mile a minute was the desideratum; and when we got up to that there seemed to be a general agreement that it would not be safe to move human beings any faster; but the electric locomotive that I predicted in my boyhood has been getting in its work, and over in Germany they have already moved human beings at the rate of over *two* miles a minute; and just recently the automobile on a steel railway track has been covering long distances in a shorter time than either steam or electricity. A paper of this week announces that it is now possible for one to have breakfast in Chicago and supper in New York, and he can have both meals by daylight. But the automobile is the only "craft" that can do it just now.

I extract from the Cleveland *Leader* the following, which may suggest to you something of what I have in mind:

GREAT SPEED RECORDS.

On roads, on rails of steel and iron, in the water and in the air, man has strained body and mind to attain the highest possible rate of motion. He has used his mastery of nature's forces to transport himself from place to place in the shortest possible time. He has made engines driven by steam, by exploding gas, and by compressed air. He has harnessed the winds and chained the mysterious electric energy of the earth. He has run the gamut from small to great in the devices he has constructed to help him move faster than he can on his own unaided legs.

What has he accomplished? Up to date what are the limits of speed reached on land, in water, through the air? How much has he gained over the animals? Bees, marked with paint, have been released exactly a mile from their hives, and reached home in 58 or 59 seconds. Lake gulls have been timed accurately by dropping bread over the rail of a steamer and taking the exact second when they rise to catch up with the vessel as the start of their flight. They do a mile a minute easily. Frigate birds fly for hours faster than any gull. Some naturalists believe they can cross the Atlantic, from Brazil to Senegal, where the ocean is 1200 miles wide, in a single night. Many homing-pigeon records surpass a mile a minute, for distances ranging up to 300 miles and more. For 100 miles the rate of 88 miles an hour has been proved.

Water creatures are much slower; but dolphins and sharks keep up with ordinary ocean steamers easily, making side excursions about the vessels much as lively dogs do when out for a country stroll with a man. It is believed that salmon make spurts at the rate of 25 to 30 miles an hour in ascending rivers. In water, as on land, man was hopelessly behind many other creatures until he called wind, steam, gas, electricity, and endless ingenious mechanism to his aid. Now he is faster than any other animal on land and in the water, but the birds still beat him easily in their own element.

I have for many years known that bees can make a mile a minute; and in the experiment given I think they did this with a load one way, and without a load I think they fly considerably faster. The fact the carrier pigeons cover a distance as great as 300 miles, at a mile a minute, suggests what men will do when they get to navigating the air. The closing sentence of the above extract intimates that the birds still beat us in their own element; but I want to tell you that the bees and the birds both will have to be up and dusting if they keep out of our way.

Consider for a moment the great saving of stone roads, railway tracks, and grading, to say nothing of the *enormous* expense of bridges.* The cost of bridges alone in and near some of our great cities goes way up into the millions. When we fly through the air, muddy roads cut no figure, and the price of rubber can go down again, for rubber tires (puncture-proof, etc.) are not "in it." Our machines for carrying passengers can be finished up in the highest style of art, and they can be kept clean because they will never touch mud nor any thing muddy; and there will be no dust to speak of—that is, if we can induce the railways, automobiles, and horsedrawn vehicles to let up a little in "kicking up such clouds of dust" continually. We can go anywhere and everywhere whether they have a railroad or a macadam highway or not.

Fourteen years ago a friend showed me a periodical devoted to automobiles. I do not know that the name had been coined then. This periodical was termed *The Horseless Age*. At the time, it really seemed to me that a magazine like that, even though published monthly, would hardly be supported. It is now a weekly, and there are toward a dozen periodicals on this same subject, most of them weeklies. I am sorry to know, however, that the greater part of them are mostly devoted to the sporting and racing feature. I wonder if I am the first one in the world to suggest that we now need a periodical devoted to the navigation of the air. *The Horseless Age* was started before any thing had been done worth mentioning; and it greatly aided progress by posting people up and comparing notes. Let me tell you *why* it is needed. An inventor whom I have visited (he will not permit me to give his name here) is spending thousands of dollars in making an air-ship, and years of time, sometimes working day and night; and this inventor would stop wasting money if he knew what was going on in some other parts of the world. The papers tell us there are still other inventors, but they prefer to keep their plans secret because each man will have it that *he* is right and *all the rest* are wrong. If these men could have a convention, and would trust each other, not only would time and money be saved, and probably also precious lives, but the new development would make a great stride. Please, dear friends, do not imagine that I am talking about air-ships held aloft by great bulky unwieldy balloons. I hope the progressive world has got past that idea. Santos Dumont may astonish us with what he has done with a dirigible balloon; but this is not what we need at all. We want a machine that will float as easily and safely as the bees, the butterflies, and the carrier pigeons do; and, may the Lord be praised, it is already *in sight*.

---

*And, again, as an illustration of what good roads cost, or, rather what *bad* roads cost compared with not needing any roads at all, I submit the following, clipped from the Louisville *Courier-Journal:*

WHY FARMERS SHOULD ADVOCATE GOOD ROADS.

It is estimated that it costs the farmers $950,000,000 a year to move their products to the railway stations. The distances to be traversed vary greatly in different sections. The minimum average is four miles, in New Jersey. In Arizona the average is 60 miles, in Utah 38 miles, and in Wyoming 40 miles. In the Southern States the general average is about 10 miles. It is supposed to cost about 25 cents per ton to transport farm products a mile, and it is estimated that two-thirds of the present cost might be saved if good roads were universal. That means an annual saving of over $600,000,000 a year. Besides, the Agricultural Department estimates that the value of the farms would be increased to the extent of $5,000,000,000.

TEACHING A GRADED SPAN OF HORSES IN ONE LESSON OF ONLY THREE HOURS SO THEY WILL NEVERMORE BE AFRAID OF AUTOS.

Dear Sir:—I want to add my testimony to the ease with which almost any horse can be accustomed to automobiles. While I do not at present own one myself, I have ridden and driven a good many belonging to friends. I have a very spirited pair of driving horses, and they were both very much afraid of automobiles, whether the same were running or standing still. I got a friend of mine to bring his automobile out to my house, and it took me just three hours to teach them that there is nothing to fear, and they have never forgotten their lessons, and pay no more attention to automobiles they may meet on the road, or that may pass them on the road, which is a severer test. All they do now is to prick up their ears and watch them closely. I think I could now teach any horse to pay no attention to them in less than three hours.

Also allow me to add how very much interested I have been in each and every article you have written concerning automobiles, and I hope you will write many more on the same subject. I think Mr. Terry is mistaken when he says, "We farmers furnish the land and keep up the roads," at least that would not be exactly true of this State, as here the county owns the roads and expends the road taxes paid by every property-holder in the county, farmers included, on these roads. And in the first instance, the land taken up by the roads have been bought from each farmer when they were originally made, and he does *not* own that land any more, and can not raise crops on it nor run any fence across it, both of which he would surely be entitled to do did he own it.

Muses Bottom, W. Va. L. S. RAWLINSON.

While the above is putting it in a much shorter period than I would have done, I think the writer is pretty nearly right if not entirely so; and is it not a fact that it is just now dawning upon this great world of ours that horses may be educated to an extent that we have heretofore little dreamed of? See reports from across the ocean, and also exhibitions at the St. Louis exposition.

SOMETHING FROM "THE HORSE'S STANDPOINT."

Mr. Root:—We are much interested in your articles on automobiles. I wonder a little that nothing is ever written from the horse's standpoint. Does any one stop to think that the average horse has a rather hard time of it, and that great numbers of them have a very hard time? We live 20 miles from a railroad, and keep a horse; but I rejoice at each new indication that the auto is coming. A number of stages go in and out of this place each day. Teams of four or six horses are constantly going and coming with freight. The crack of the big whip is a common sound. All have mountains to climb. Often the driver does not use good judgment in handling his teams, and the strain comes doubly hard on some.

Throughout this State during the dry season, another great army of people are traveling. These are the campers. Among them, also, are many jaded ill-fed horses. They usually carry a heavy load of bedding, cooking-utensils, etc. I look at the weary horses, and rejoice to think that some day the automobile will relieve them. One who has never been in the mountains can not realize what climbing with loads is for horses.

Lakeport, Cal., Sept. 26. L. W. DENSMORE.

Many thanks, my good friend, for having put in a plea for better treatment for horses. If the advent of the automobile should relieve in even a small degree the horse as a beast of burden, I should rejoice. I have all my life (many times on these pages) protested against cruelty to and overloading the poor horses. If the automobile is going to bear the heavy burdens, and let the horses do the lighter work, and become more a companion to man rather than an abject slave, tortured and cruelly used at that, then we can rejoice. It is not uncommon to find horses that have more intelligence and good judgment in their line of work than the beast (in man's image) that drives and abuses them. On page 898, Sept. 15, one of the writers uses the expression, "your sweet-tempered Mrs. Root." I took the letter over and read it to her before it was put into print, and you should have heard her ringing laugh when she heard herself called "sweet-tempered." I think I shall have to confess that I put it in print without her permission; and when she saw it she was not exactly "sweet-tempered." She said in substance, it is not true; it never was true, and she feared it never would be true. Notwithstanding the above, I have my own opinion in regard to the matter. May be I am biased a little in her favor. But this is true: Whenever she sees a drunken man (or any *other* brute) beating a horse that is doing its very best, she is likely to show a peculiar trait that the world might not call "sweet-tempered." If a man wants to get mad at his auto, and abuse it while he is on a drunken spree, none of God's creatures are made to suffer. If he overtaxes it or abuses it in any way while he is in a fury, he must pay the penalty out of his own pocket.

LONG-RANGE WEATHER-PREDICTIONS, OR TELLING WHAT THE WEATHER WILL BE FOR A YEAR IN ADVANCE.

I feel it my duty to keep bringing this matter up so long as there are people who quote the fake weather-prophets. The following extract is from a recent issue of the Cleveland *Leader:*

> "I will go on record with the statement that it is impossible to forecast the weather of ten successive days for a given locality on scientific principles. Any one pretending to do so is a humbug in the fullest sense of the word, and can be proved so in every instance."
>
> The statement quoted above was made yesterday by Father Odenbach, of St. Ignatius' College, who, with Forecaster Kenealy, has just returned from the third convention of Weather Bureau officials held at Peoria, Ill., last week under the authority of the Secretary of Agriculture.
>
> Father Odenbach, who is recognized as one of the country's greatest experts on meteorological subjects, also attended the convention of the officials held three years ago at Milwaukee. Such statements as "There will be storms in the period of the 20th to the 27th of September," without mentioning a special day or designating a single State, to say nothing of a county or a single city, are easily made, and any schoolboy has a formula by which he may give the percentage of possibilities for guessing correctly. It is guessing, and nothing more. It is unpardonable in a modern newspaper to cram its pages with lies, nonsense, and productions of ignorant, eccentric, or dishonest fakers. To give them a chance is a menace to the public and a crying injustice to a set of men that are the pride of the intellectual portion of the American people commanding the highest esteem of European scientists of all nationalities. We Americans pride ourselves on the strength of our scientific schools and intellectual advances generally. The weather-prophet fad is certainly a manifestation in the contrary direction. Any man talking seriously of these quacks is set down in my mind as deplorably ignorant, at least as regards meteorological science. The same may be said for the charlatans themselves, though I would give them the alternative of being ignorant or dishonest.

I might mention here that the Weather Bureau has published quite a good-sized book or pamphlet giving an account of the most careful observations made for years past, and all over the world, to determine whether our moon or any of the planets affect the weather. The decision is most emphatic, and you can set it down that the man who attempts to tell you the moon has any influence whatever on the weather is either ignorant or dishonest. I can forgive him for being ignorant; but the dishonest man who robs the people of their hard earnings by his almanac should be relegated to the place where all liars will some time congregate.

See the last paragraph in my extract above.

Since the above was in type I find an editorial by Willis L. Moore, Chief of the Weather Bureau, in the *Monthly Weather Review*, entitled "Fake Forecasts." From this I make the following brief extracts:

> So far as we recall the names of those who have distinguished themselves for making popular weather predictions based on principles that are contrary to all our knowledge of meteorology, the list runs somewhat as follows: Vennor, 1875-1890; Hicks, 1890 to date; Dunne, 1892 to date; Foster, 1885 to date; Elmer, 1903 to date; Snavely, 1902-1904. While these have been active in the United States, the rest of the world has also had its varied experiences. In England, Mr. Hugh Clements and his great expounder, Hon. William Digby, have vexed the printer with an imposing volume and the public with daily predictions in the local newspapers. These authors speak as confidently about the moon as Rev. Mr. Hicks does about Vulcan, Jupiter, and the other planets, real and imaginary. Italy and Austria have gone through a sad experience with vortex-ring cannons for driving away hail.
>
> Wherever the life and property of the citizens are at stake, the Government of the people, by the people, and for the people must necessarily look after their interests, and the time must soon come when a general law shall forbid the publication of weather predictions and storm warnings, especially those of a sensational character, by any others than properly licensed persons.

HIGH PRESSURE GARDENING BY A. I. ROOT

"HIGH-PRESSURE" STRAWBERRY-GROWING.

Mr. Root:—After carefully reading your A B C of Strawberry Culture I have decided to try my hand at strawberries. Three years ago I planted some after having just turned a heavy sod, with the result that the large white grubs ate off the roots, and the plants died. Now, we have only about seven acres in all, only four of which are available for a cultivated crop. We have one-half acre in early potatoes. When these are off I intend planting strawberries there, putting them close in single or even double rows, say nine inches to a foot in the row; keep off all runners, get a crop of strawberries next spring, then plow plants under and plant a late crop, say late cabbage. Please give your opinion of the plan. I realize that this is intensive culture, but that is what we have to resort to. The increased price for the greater number of strawberry-plants needed will, I think, make no perceptible difference, as we shall get three crops off the land in two years.

I forgot to state that our soil and climate fully warrant this venture in strawberries. We are within six miles of Milwaukee, with 300,000 people (a good market for a good product). ARTHUR P. LOEWE.

Milwaukee, Wis., July 9, 1904.

Your plan of strawberries after early potatoes is all right. The finest strawberries I ever grew were managed in this way; but I should not think of planting as close as you do; 20 inches, or, better still, two feet, is none too far for hill culture; but I would not think of plowing them up after they had grown one crop. You might get a very good crop the first summer after the potatoes, but you will get a much better one if you keep the runners off and grow one year more. It is so much work to fix a strawberry plantation just right, it generally pays to get another crop. If, however, you decide on just one crop, perhaps your close planting will be all right, providing your land is very rich, and in this way you will save laborious weeding. The big city you mention is quite an item in the matter. Under such circumstances you can afford to put a lot of work and a lot of manure also on a small piece of ground.

Humbugs and Swindles.

THOMAS A. EDISON, JR.'S, ELECTRIC VITALIZER.

More than a year ago I received a flaming pamphlet saying that the son of Edison, the inventor, had just gotten out something for the cure of sick people more wonderful, and of more value to the world, than any thing his illustrious father had given. I was pained and surprised at the news that Edison should in any way let his good and great name be used in support of a humbug. I asked for particulars, and have been getting their printed matter ever since. I thought of the feelings of the father, but reasoned that he must know all about it, and agree to it. Among other things in the advertising matter was the following:

> "Never has the truth of the law of heredity been so well illustrated as it has in the Edisons—father and son."

I felt sure that it was a fraud of some kind, but it never for a moment occurred to me young Edison was *not* actually at the bottom of it. Yet I could not understand why his greed for money should tempt him to use his father's good name in this way. In the Cleveland *Leader* of Oct. 6 we are told that the Postoffice Department has finally shut down on the whole thing. May the Lord be praised! Below is the explanation:

> It was disclosed that Edison, Jr., was not the inventor; that, under the agreement he had with the company, he never received more than $35 a week, and that the company sold thousands of the vitalizers at $8 a set at a large profit.
>
> Extravagant claims were made for young Edison's inventive genius. It was claimed he had refused an offer of $750,000 for the "vitalizer," and that the Japanese government was anxious to secure it for its troops in the field.
>
> The elder Edison received hundreds of letters of inquiry about it. He then appealed to the authorities, and said, among other things:
>
> "My son, who is named in the company's literature as a great inventor and medical authority, and in personal charge of the regulation of the vitalizers to the needs of individual cases, is a young man of no scientific or inventive attainments. He has never represented himself as such. The boy was gotten hold of solely for the use of his name."

Just think of it, friends. The truth of the matter is, a fake company paid young Edison $35.00 a week for the use of his name; they then went to work and wrote whatever they pleased, and put his name at the bottom of it. The only thing we can blame the Edisons for is for letting the thing go on till the present time, "robbing sick people" by the hundreds and perhaps by the thousands, using names and testimonials till our government finally put a stop to it. The apparatus is Electropoise over again, only there is in real fact a *little* electricity about it, while Electropoise has none and never did have. It must be a combination of Electropoise and cheek—the kind of cheek used by the Duffy Malt Whisky people. We are told young Edison is now seriously ill. It is a little strange that *he* should be sick when his own vitalizer was advertised with such vehemence to "cure *every thing.*"

PAROID ROOFING

You will be surprised at the money you save and the satisfaction you get from

Paroid Roofing

—the roofing with quality and durability in it. Don't be persuaded to buy an imitation. Get the genuine. Contains no tar; slate color; any one can lay it in any kind of weather. Complete roofing kit in each roll.

Send For Free Sample

and book, "Building Economy." It will save you money.

F. W. BIRD & SON,
(Established 1817)
E.Walpole Mass., or Monadnock Bldg., Chicago.

FOR YOUR ROOFS

The Oldsmobile Runabout

These are the features of the Oldsmobile which have proven its reliability and efficiency for every-day use.

Power—7 horse-power developed by a 5x6 cylinder.

Weight—1100 lbs.

Road Efficiency—measured by the horse power per hundred lbs. weight—7-11 or .636.
Packed joints or gaskets—**none.**

How it starts—from the seat—safety device to prevent a "kickback" of the starting-handle.

Gasoline Capacity—6 gals.
Water Capacity—5 gals.
Enough for 100 miles on ordinary roads.

Tires—3-inch double tube.

Brakes—New hub brakes.

Increased power, speed, and size. Three-inch wider seat. Large radiators.

Price—$650,00, and it is worth it.

Besides these it has the proven Oldsmobile reliability, durability, and simplicity—these came from knowing what was needed and how to produce it. "You see them wherever you go; they go wherever you see them."

Our catalog tells you about our new models, also Touring Runabout, $750.00; Light Tonneau, $950.00; Oldsmobile Delivery Wagon, $850.00.
Free demonstration by our nearest agent.

Olds Motor Works,
Detroit, Mich.

$1 100 Magazines Each Year $1

OUR GREAT CO-OPERATIVE CLUB consists of yearly subscriptions to the following high grade magazines. Each stands at the head of its class. This combination furnishes your home with plenty of good clean, interesting and instructive reading matter for every member of the family at the very lowest cost.

Farmers Voice – Weekly *$.60*
For forty years the most earnest advocate of all things which tend to make life on the farm more pleasurable and profitable. The only farm paper that gives its readers the best of all the news. Best of market reports.

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Never less than 164 pages. Never less than six cracking good short stories. Each issue contains articles by Opie Read, Stanley Waterloo, Col. Wm. Lightfoot Visscher, Chas. Eugene Banks, Irving Bacheller, and other leading American writers. Beautifully illustrated.

The Household Realm **19th year** *.50*
A carefully edited monthly for the home; owned, edited and published exclusively by women and treating of every interest in the household. Profusely illustrated.

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The oldest and best poultry paper in the world. It has improved with the years until it stands in the fore front of its class.

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For Greens Fruit Grower you may substitute Vick's Magazine, Farm Journal, Blooded Stock, Kansas City Star or St. Paul Dispatch.

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Sample copies of The Farmers Voice free. Liberal terms to agents.
FARMERS VOICE PUB. CO., 32 Voice Bldg. Chicago.

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WANTED.—A good coon and skunk hunting dog.
P. W. Stahlman, West Berne, N. Y.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—To exchange two Cyphers incubators and brooder for bee-keepers' supplies, tools, etc.
J. T. Greene, Valois, N. Y.

WANTED.—Comb and extracted honey. Describe the kind you have; how put up, with lowest price for cash. L. H. Robey, Worthing, W. Va.

WANTED.—Refuse from the wax extractor, or slumgum. State quantity and price.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Quantity lots of gilt-edge, new, white-clover comb honey, plain or tall sections preferred. Also extracted honey in cans in exchange for second-hand cans. B. Walker, Clyde, Ill.

WANTED.—Partner for party wishing to engage in bee and poultry business. Good farm, nearly 40 acres, with dwelling, barn, and poultry-houses, can be bought for $1500—$500 cash, balance mortgage. Bees averaged 80 pounds surplus per season last 5 years. Have 100 colonies, with unlimited range for out-apiaries. A living in poultry alone. S. V. Reeves,
114 E. Park Ave., Haddonfield, N. J.

WANTED.—An experienced dairyman who likes to care for cows and make them do their best. Warm stable, cement floor, Bidwell stalls, water in every stall, three silos, 39 cows; milking hours, 4:30 A. M., 2:30 P. M. Wages, $300 per year, with house, garden, apples, pears, cherries, etc. If wife or any other member of family can milk, will pay more according to amount of milking they do. When answering this ad., give reference, also state number of members of family and their ages. I will give $5.00 to anybody who refers me to the man that I will employ. J. P. Watts, Kerrmoor, Pa.

Situations Wanted.

WANTED.—An experienced man in hog-raising and poultry-keeping. J. E. Larrondo,
Constancia Estate, Encrucijada, Cuba.

WANTED.—On short notice, an honest, active, experienced helper in the bee and honey business. Permanent place for the right man. Best of references required and given.
B. Walker, Clyde, Ills. (Chicago suburb).

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

For Sale.—Several hundred colonies of bees, with locations—in southern California—for particulars address I. A. King, Derby, Tex.

For Sale.—Sweet-clover seed, 50 pounds or over, at 5 cts. per lb. Address Joseph Shaw,
Strong City, Kan.

For Sale.—Extracted honey, clover or basswood, in kegs or cans. Write for price. Sample, 8 cts.
C. B. Howard, Romulus, N. Y.

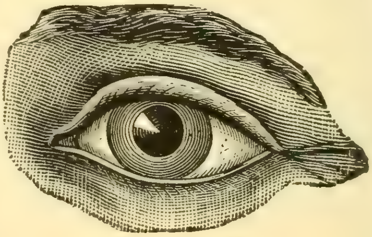
For Sale.—On account of the death of my husband I will sell cheap about sixty colonies of bees and all kinds of supplies, all in good condition.
Mrs. H. L. Haines, Moons, Fayette Co., Ohio.

For Sale.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. Hyatt, Shenandoah, Page Co., Iowa.

For Sale.—Thoroughbred S. C. White Leghorn cockerels, 75 cts. each. Also three White Wyandotte pullets and one cockerel for four dollars.
J. Ferris Patton, Newtown, Ohio.

For Sale.—On account of not having room in my cellar to winter all the bees I have, I will, for the next 30 days, sell full colonies of pure Italians in nine-frame hives at $4.00 each. Hives are in good condition. In lots of five, will give one super with each colony. Safe arrival guaranteed. F. A. Gray,
Redwood Falls, Minn.

Mr. Bee Man!



am looking for your orders for queens. I please others, why not you? My trade has increased five-fold in the past four years. . . .

64-PAGE CATALOG.

J. M. Jenkins,
Wetumpka, Alabama.

Bee-keepers, Attention!

Are you going to buy bees? Are you going to locate in Texas?

We make a specialty of nuclei and full colonies of bees for shipment; in any quantity, anywhere, at all seasons of the year—carlots a specialty. We are selling agents for a large number of colonies of bees, in quantity and locations to suit purchasers. This is a great bee country, and we can supply you the bees at satisfactory prices. If you wish to buy a farm or ranch with the bees, very likely we can have it for you. Write us your wants.

THE HYDE BEE-SUPPLY CO.,
H. H. HYDE, President and Manager,
129 North Flores St., San Antonio, Tex.

GOODS IN SEASON.

Cases for marketing comb honey.
All kinds of packages for marketing extracted honey. . . .
Glass jars for canning fruit. . .
Bee-escapes for taking off honey.

Every thing the very best.

Standard-bred Italian Queens. Full line of the best Bee Books. . .

We yet have a full line of hives, sections, comb foundation, and every thing necessary for the bee-keeper. **Big discount on all goods for next season's use,** if ordered at once. Order now and save money, and be in time for next year.

Catalog Free.

C. M. Scott & Co.,
1004 E. Washington St.,
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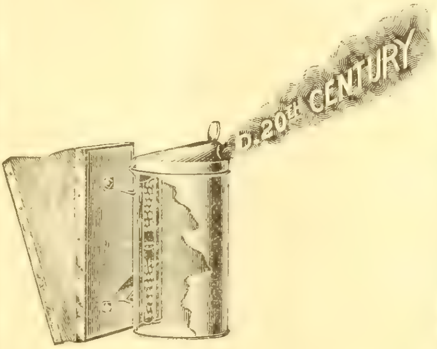
...$1.00 Smoker...

Guara nteed to suit or thedollar back.



Buy the D. 20th Century Smoker, it is the best. The construction is so simple and complete, it is **sure to please, can not clog,** smokes three to five hours at one filling. $1.00 each; three, $2.50 by express or with other goods; by mail, each, 25c for postage.

F. DANZENBAKER, care the A. I. Root Co.'s space (29) West Annex Horticultural Bldg., St. Louis, Mo.

SPRAY PUMPS

The Pump That Pumps

SPRAY PUMPS

Double-acting, Lift, Tank and Spray PUMPS

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Glass Valve

Store Ladders, Etc. HAY TOOLS of all kinds. Write for Circulars and Prices.

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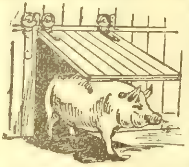
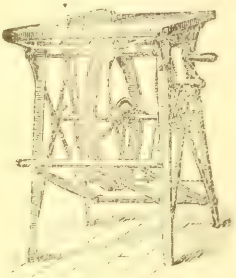


with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, · Ohio.



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Hand and Foot Powe
Machinery.

This cut represents ou combined circular saw which is made for bee keeper's use in the co struction of their hives sections, boxes, etc., etc **Machines on Trial.** Send for illustrated catalog and prices. Address

W. F. & Jno. Barnes Co.,
545 Ruby St.,
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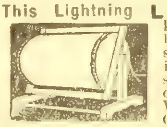
PAGE 10-BAR, 28-INCH FENCE

is **Pig Tight.** Its bottom spaces are only 2 inches.
PAGE WOVEN WIRE FENCE CO., Box S, Adrian, Mich.

This Lightning **LICE-KILLING MACHINE**



kills all lice and mites. No injury to birds or feathers. Handles any fowl, smallest chick to largest gobbler. Made in three sizes. Pays for itself first season. Also Lightning Lice-killing Powder, Poultry Bits, Lice Murder, etc. We secure special low express rates. Catalog mailed free. Write for it.
CHARLES SCHILD CO., 401 Prospect St., Cleveland, O.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. LAWS, Beeville, Texas.

QUEENS! THE BEST can always be had at 75c each for untested; $4 25 for six; $8 00 per dozen. Tested $1.50 each. Best breeders $5 each. Safe arrival and satisfaction guaranteed. **The JENNIE ATCHLEY CO.,**
Box 18, Beeville, Bee Co., Tex.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

If the BEST Queens are what you want,

Get those reared by Will Atchley, Manager of the Bee and Honey Co. We will open business this season with more than 1000 fine queens in stock ready for early orders. We guarantee satisfaction or your money back. We make a specialty of full colonies, carload lots, one, two, and three frame nuclei. Prices quoted on application. We breed in separate yards from six to thirty miles apart, three and five banded Italians, Cyprians, Holy Lands, Carniolans, and Albinos.

Tested queens, $1.50 each; 6 for $7.00, or $12.00 per dozen. Breeders from 3-banded Italians, Holy Lands, and Albinos, $2.50 each. All others $4.00 each for straight breeders of their sect. Untested queens from either race, 90 cts. each; 6 for $4.50, or $8.50 per dozen. We send out nothing but the best queens in each race, and as true a type of energy, race, and breed as it is possible to obtain. Queens to foreign countries a specialty. Write for special price on queens in large lots and to dealers. Address **The Bee and Honey Co** (Bee Co. Box 79), **Beeville, Tex.**

IT DOESN'T PAY

to keep those poor colonies when a young vigorous queen from the best honey-gathering stock given *now* may make them your *best colonies* next season. We believe we have as good bees as there are for *business*. We rear our queens carefully, rejecting poor cells or virgins; guarantee them good queens and purely mated, or replaced free on notice. Our testimonials will compare favorably with any. One queen, 75 cts.; six for $3.50; 12 for $6 50; select tested, $1.00; six for $5; tested, $1.00; select tested, $1.50; extra select tested, $2.00.

J. B. CASE, Port Orange, Florida.

I. J. Stringham, New York

No. 25 Jars, with burnished tin top and prepared cardboard lining, $5.00 gross. This is quick to fill and NEVER LEAKS. No. 25 jars with porcelain top, $5.25 gross. 1-lb. square jars, with corks, $5.00. Discount on more than one gross.

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Apiaries, Glen Cove, L. I. **Salesroom, 105 Park Place, N. Y.**

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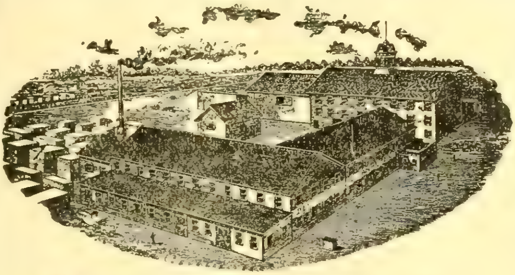
Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



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Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

☞ *WRITE AT ONCE FOR CATALOG.*

AGENCIES.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.

Our Specialties

Cary Simplicity Hives and Supers, Root and Danz. Hives and Supers; Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season.
32-page Catalog Free.

W. W. Cary & Son,
Lyonsville, Mass.

Virginia Queens

Italian queens secured by a cross, and years of careful selection. From red-clover queens and Superior stock obtained from W. Z. Hutchinson. I can furnish large vigorous untested queens 75 cts.; after June 15th, 60 cts.; tested queens, $1.00; after June 15th, 75 cents.

Write for discount on large orders.

CHAS. KOEPPEN,
Fredericksburg, - Virginia.

MOORE'S STRAIN OF ITALIANS

AS RED-CLOVER WORKERS.

L. C. Medkiff, Salem, N. J., says: "I bought an untested queen of you last year and her bees have filled three comb-honey supers, and did not swarm, while thirteen out of the fifteen other colonies did not get more than half that amount

I have queens from six different breeders, and I class yours 100 per cent above them all. Your bees worked very strong on the first crop of red clover. I know they were yours, because I floured them with a dredge-box and watched the hive. They also worked strong on the second crop of red-clover and lima-bean blossoms."

Untested queens, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5.00; dozen, $9.00. Safe arrival and satisfaction guaranteed.

Send for descriptive circular showing why my queen-trade has grown so fast. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. MOORE, Morgan, Pendleton Co., Key.

---

150 TESTED RED CLOVER QUEENS,
three to five banders, fine queens, $1.00 each. Circular free. G. ROUTZAHN, Biglerville, Pa.

NO DRONES

in our printery. That is why we save you money. Sample hundred envelopes, noteheads, letterheads, business cards, statements, or billheads, **40c** postpaid. Samples free. **Young Brothers, Girard, Pa.**

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

During this month (October) I will offer a ***Special Discount of 6 per cent for Cash orders,*** for goods wanted for next season's use. During November the discount will be 5 per cent. These discounts apply to orders for hives, sections, foundation, etc., but not for honey-packages or shipping-cases, or goods for immediate use. One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer.*

HONEY

I have on hand a large stock of extracted honey in 60-lb. cans, white-clover or water-white alfalfa. A single can of either at 8½c per pound. Two cans in a box at 8c per pound. Bee-keepers having a demand which exceeds their supply can here avail themselves of an opportunity.

Have you noticed what the leading Bee-keepers of Indiana have been saying about my line of goods? Here is another sample letter. . . . .

Alexandria, Ind.

Walter S. Pouder, Indianapolis, Ind.

Dear Sir:—I have been dealing constantly with you for 15 years, and in all that time have not had a single cause for complaint. Your goods come promptly every time. In 1897 and 1903, both good honey years, and in the rush, when a single day's delay meant a loss in dollars to me, yet order after order was filled promptly and correctly. To me the name Pouder is a synonym for promptness in business. I can recommend you to those who need supplies in time for the harvest.

Truly yours, Evan E. Edwards.

Beeswax Wanted.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

Kind Words from our Customers.

What you have to say about the automobiles is right if every one would look at it with a Christian spirit as you do; and yet I can not help speaking in favor of the *Farm Journal* too. We have taken it for 15 years or more, and think a great deal of it, because it will not advertise liquor, tobacco, cigars, playing-cards, quack medicines, and a great many other things. Its pages are clean, and I am not afraid to let the children read any thing in it, something I can not say about all papers, especially a number of Sunday papers.

MRS. G. H. BECKETT.

Ridgeway, Wis., Sept. 26.

OBJECTIONABLE ADVERTISING, ETC.

I hasten to write my approval of the stand you take against tobacco and indecent and intemperate advertisements. As to advertisements, I may say that I would blush to have my gentlemen friends look at or read some of them in our Michigan *Christian Advocate*, although in other respects the paper is first-class. You ask for periodicals that are taking a stand against tobacco. I would call your attention to *The Boys' World*, published by the David C. Cook Pub. Co., through which the National Anti-cigarette League is trying to reach the youth of America. In our family we have only two "smokers," and they are bee-smokers from Medina.

ALICE F. BRIGGS.

Harrisville, Mich., June 23.

WHISKY MEDICINES; A KIND WORD FROM BRITISH COLUMBIA IN REGARD TO THE MATTER.

Dear Mr. Root:—I have just read your letter in GLEANINGS regarding patent-medicine fakes; and if you were here I would shake your hand "till your suspender busts." I am glad to see the stand you are taking on that terrible evil (patent medicines). I honestly believe it is doing more harm to our country than the liquor curse, and I am glad to find that my ideal of manhood, Bernard McFadden, of *Physical Culture*, has a grand old ally in Mr. Root. Keep it up, and God bless you for it. It might be as well to suggest through your paper that all people having any dealings with the public papers should put in a strong footnote condemning their action in receiving these misleading advertisements. I do that myself, and count up all the advertisements that I consider not fit for the press, and sometimes in a big paper it is enormous. In one paper I counted 71 advertisements and locals, and I gave the editor fits, but so far without results; but keep pegging away and we shall clear the press just like clearing our garden of weeds. I write you this to let you know that out here in British Columbia you have our hearty support. Then next to that, help Bernard McFadden in his crusade against the murder of unborn children, so much practiced at the present day, especially by our so-called upper class. Now may God bless you and help you in your work for purity and love.

GEO. SCHOFIELD.

Vancouver, B. C.

Special Notices by A. I. Root.

SWEET CLOVER—REDUCTION IN PRICE.

Until further orders we will make the following low prices: 100 lbs. or over, 6 cts. per lb.; 10 lbs. or over, 8 cts. per lb.; 1 lb., 10 cts. By mail, 1 lb., 20 cts. Yellow sweet clover, 5 cts. per lb. more than the above. We are not sure it is any better, but it is earlier, and at present it is scarcer. We do not recommend the hulled clover of either kind. I believe the general testimony is that it grows best with the hulls on; and as the hulls adhere very closely, it is expensive to remove them.

THE GRAND TRAVERSE REGION OF NORTHERN MICHIGAN IN OCTOBER AND NOVEMBER.

There is no other season of the year when I enjoy a trip so much on Grand Traverse Bay as during the fall months, especially late in the fall. After frost has killed every thing all through Central Michigan, and oftentimes through Ohio as well, on the hills skirting Grand Traverse Bay every thing will be green and growing. Indian summer is always especially inviting for outdoor trips; but the Indian summer of the locality I am speaking of seems to eclipse any thing nature has to offer anywhere else. The Wheeling & Lake Erie Railway Company makes a special excursion rate for Oct. 19; and as this goes over the Pere Marquette line, I presume they will do the same. Mrs. Root and I expect to visit our cabin in the woods about that. time.

BASSWOOD-TREES FOR HONEY.

Now is the time to put out your basswoods. The tree is very hardy, and easy to grow, and with just ordinary care I believe they can be made to grow in any part of the United States, north, east, south, or west, although ground a little damp seems to suit them better. Some of the finest trees are found growing by the banks of streams where the roots can go over and dip into the water. If the basswood, or linden, is not the best honey-plant in the world it is one of the best; and at the present time it is almost the only wood in the world that furnishes the beautiful white smooth sections. So you can afford to plant them for the timber as well as for bees. In fact, you get both. They will begin to blossom when three or four years old, or, say, when five to ten feet high; and they are then loaded with bloom every season, almost, just about the time white clover is closing. We have a nice lot in our own nursery right adjoining the factory, so we can send them by return mail or express. Prices are as follows:

	1	10	100
One foot and under - - - -	.05	.30	$2.00
The above by mail - - - - -	.08	.35	$2.25
One to five feet - - - - -	.10	.75	$5.00

Those one foot and under can be sent conveniently by mail. The larger ones should go by express. Please notice we send trees only as above not all of one size. It would spoil our assortment, and, besides, it would prevent us from digging a row right along so as to use the ground for something else.

Convention Notice.

A meeting to organize a Georgia State Bee-keepers' Association will be held at Macon, Ga., Oct. 21, at 10 A. M., in hall at 20½ Cotton Avenue.

J. J. WILDER, Cordele, Ga.

The Illinois State Bee-keepers' Association will hold its 14th annual session in Springfield, Nov. 15, 16. Excursion rates will be given on all roads in the State. We shall have a good program.

J. A. STONE,
Springfield, Ill. *Secretary.*

The Southwest Texas Bee-keepers' Association meets in San Antonio, Texas, Thursday and Friday, October 27 and 28. This will be a rousing and important meeting, and all bee-keepers are cordially invited to attend. For program and place of meeting, address

H. H. HYDE, President,
129 N. Flores St., San Antonio, Tex.

The Connecticut Bee-keepers' Association will hold its fall meeting in the capitol at Hartford, room 50, November 10, at 10:30 A.M. The question-box will be open to all. All bee-keepers are invited to attend with their friends, bringing questions they would like discussed. Bring a sample of this year's honey crop or some apiarian fixture you would like to show.

E. E. SMITH,
Watertown, Ct. *Secretary.*

We wonder if our readers have noticed the very low price of books advertised by the Frisbee Honey Co., on page 965. They would no doubt make good Christmas presents. A postal card will bring you a list of the titles of these books.

It is very pleasing to us to hear from any of our advertisers to the effect that GLEANINGS IN BEE CULTURE is a valuable paper for them to use. Just lately we received a renewal from the Plymouth Rock Squab Co., 289 Atlantic Ave., Boston, Mass., for another year's advertising, in which they speak in high terms of GLEANINGS as an advertising medium for them. It occurs to us that one reason why it pays them so well is because of their close attention to business and their interest in their customers. We suggest that our readers send to them for their free book, "How to Make Money with Squabs," as they undoubtedly have a good proposition in this industry.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

We will allow a cash discount of 6 per cent on orders sent in during Oct.

Send for Our FREE New Illustrated Catalog and Price List.

Dittmer's Foundation

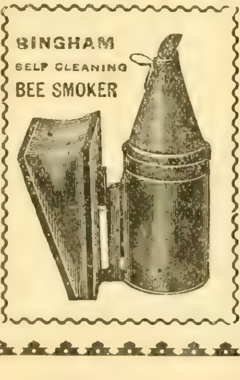
RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

GUS. DITTMER, - - - AUGUSTA, WISCONSIN.



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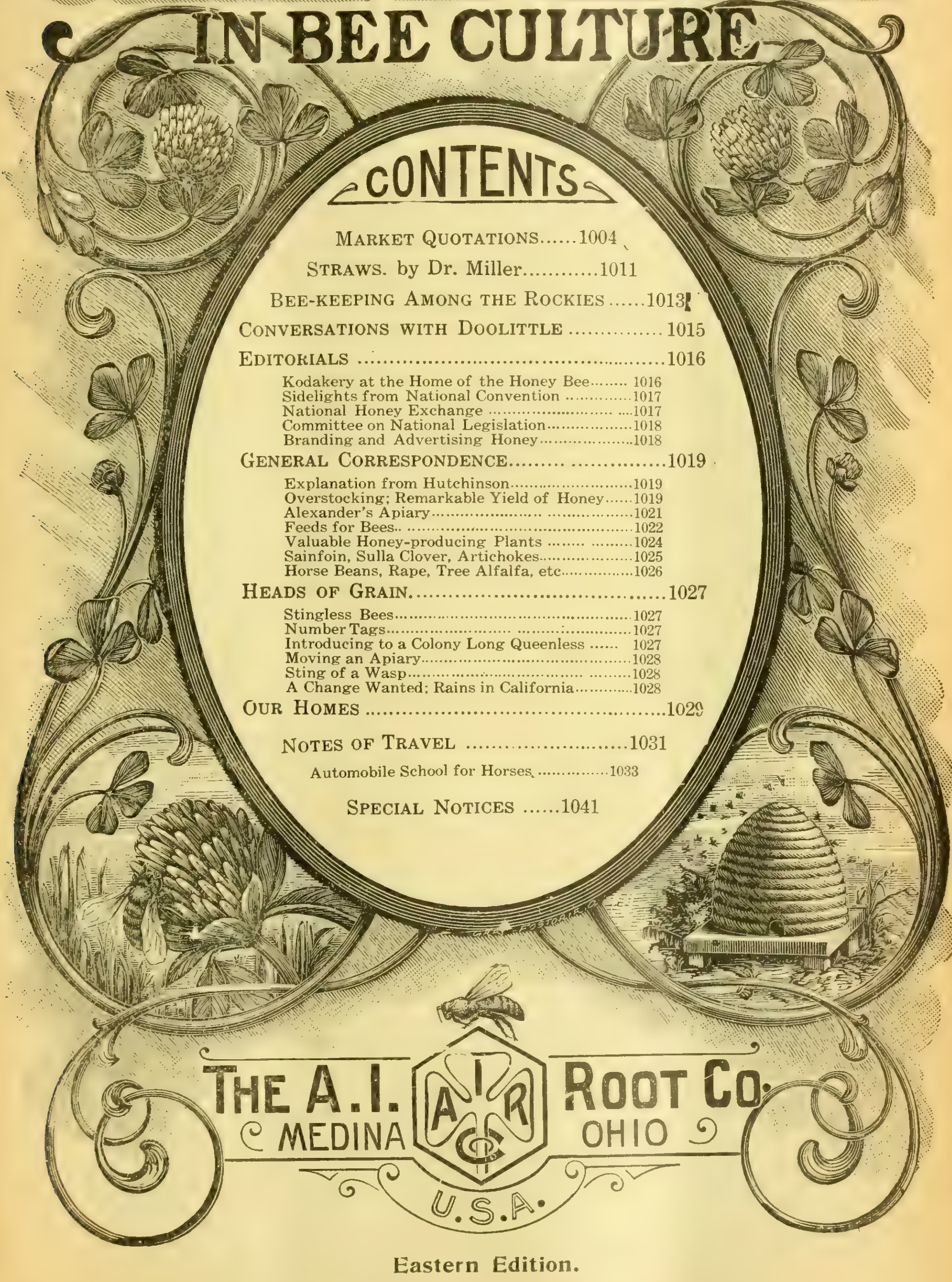
That goes without Puffing—Clean, Durable, and Handy—

Oldest, newest, and embracing all the improvements and inventions made in smokers, send card for circular to

T. F. BINGHAM,
FARWELL, MICH.

Volume XXXII. NOVEMBER 1, 1904. Number 21

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

ENTERED AT THE POSTOFFICE, AT MEDINA, OHIO, AS SECOND-CLASS MATTER.

Get Our Discounts!

G. B. LEWIS CO. AND DADANT'S BEE-KEEPERS' SUPPLIES.

BEESWAX WANTED AT THE HIGHEST MARKET PRICE.

LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

5 Per Cent Discount for November.

George E. Hilton, Fremont, Mich.

DISCOUNTS

For the New Season---for Cash Orders.

During October, 6 per cent.
" November, 5 "
" December, 4 "

And you get Root's Goods. Tell us what you want, and we will tell you what it will cost. **Our Catalog for the asking.**

M. H. Hunt & Son, Bell Branch, Mich.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Let me sell you the Best Goods Made; you will be pleased on receipt of them, and save money by ordering from me. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: ::

Discounts

Allowed on early orders; take advantage by ordering now. Orders received during

September, 7 per cent
October, 6 "
November, 5 "
December, 4 "
January, 3 "
February, 2 "
Off Catalog Prices.

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—Shipments have been quite heavy in the last two weeks; prices are a little weaker in consequence, although fancy honey maintains a good price. We find the shortage is always in the fancy goods, and the off goods are what overstocks the market. We quote: Fancy, 16@17; No. 1, 14; amber and No. 2, 12@13. Extracted, white, 8; amber, 6@7. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Oct. 25. 10 Vine St., Philadelphia, Pa.

TOLEDO.—The demand for comb honey has improved considerably within the last two weeks, and receipts are equal to the demands as a great many bee-keepers have made up their minds they would much rather sell their honey now than to hold it for better prices. We quote fancy white comb honey in a retail way, at 15c; No. 1, 14; amber, 13, buckwheat, 13. Extracted white clover in barrels, 6@6½; in cans, 6½@7; amber in barrels, 5@5½; in cans, 5½@6. Beeswax, 26@28.

GRIGGS BROS.,
Oct. 24. Toledo, Ohio.

ST. LOUIS.—The demand for honey is good, and we quote as follows: Fancy white comb, 14; A No. 1, 13; No. 1, 11@12; Nos. 2 and 3 are not wanted, and prices are nominal at 7@9. Choice, new extracted in five-gallon cans, 6½@7, according to quality, outside price for white clover. Southern honey in barrels, 5@5½; in five-gallon cans, 6@6½. Beeswax, 28.

R. HARTMANN & CO.,
Oct. 24. 14 So. Second St., St. Louis, Mo.

MILWAUKEE.—Since our last report there seems to be an improvement in our market for honey—more inquiring, more sales, and a little firmer feeling and more confidence concerning the trade generally. The receipts of new crop have been fair, and sales of both old and new quite satisfactory; and we encourage shipments, and quote old comb, in good order, choice and fancy, 10@12; new crop, fancy, 13@15. Extracted, in bbls, cans, and pails, white, 6½@7; dark, 6@6½. Beeswax, 28@30.

A. V. BISHOP & CO.,
Oct. 18. Milwaukee, Wis.

CINCINNATI.—Comb honey is now coming in more freely, and prices if any thing have moderated a little. The sales made and prices obtained were: No. 1 fancy water white, 13@15; No. 2, 12@14. Extracted is sold as follows: white clover, in barrels, 6½; in cans, 7½@8; amber, in barrels, 5¼@5½; in cans, 6@6½. Beeswax, 27.

C. H. W. WEBER,
Oct. 20. 2146-8 Central Ave., Cincinnati, O.

CHICAGO.—This is not an active market considering the season of the year; prices are not strong, and may sag in the absence of demand. No. 1, white comb, 12½@13; fancy clover, 14, with corresponding grades 1 to 3 cents less. Extracted white, 6½@7½; amber, 6@6½ according to kind, flavor, quality, and package. Beeswax, 30.

R. A. BURNETT & CO.,
Oct. 24. 199 South Water St., Chicago, Ill.

BOSTON.—We are pleased to note an increased demand for honey, which with the comparatively light receipts makes prices firm. We quote fancy white, 16@17; No. 1, 16, with but little No. 2 on hand or to be had. Extracted light amber, 7@8.

BLAKE, SCOTT & LEE,
Oct. 24. 31 and 33 Commercial St., Boston, Mass.

TORONTO.—Honey market is rather quiet, not much change in prices; not as much offered as there was last year at this time. Some bee-keepers are holding out for higher prices, expecting a scarcity later on. Present prices are: Comb, $1.25@$2.25 per doz. Extracted, 7½@8 for the best quality light; 6@6½ for darker; buckwheat, 5.

E. GRAINGER & CO.,
Oct. 24. Toronto, Can.

KANSAS CITY.—The demand for honey is quite active at present in this section, but the price still remains steady at $2.75 per case; this is on account of Colorado shipping a good many cars to this market. We think, after the first of the year, however, the market should be higher. Extracted honey dull at 6@7.

C. C. CLEMONS & CO.,
Oct. 24. Kansas City, Mo.

ALBANY.—Honey market much easier under liberal receipts, the crop proving to be larger than anticipated. We quote fancy white comb, 15; No. 1, 14; mixed, 11@13. Buckwheat, fancy, 12½@13; No. 1, 12; mixed, 10@11. Extracted is slow at 6 for dark; 6½@7 for light.

MACDOUGAL & CO.,
Oct. 25. 326 Broadway, Albany, N. Y.

BUFFALO.—There is a very light stock of honey in our market. The demand is improving. Some call for strained, etc. None on the market. Fancy white comb, 13@14; A No. 1, 12½@13; No. 1, 12@12½; No. 2, 11@12; No. 3, 10@11; No. 1 dark, 10@11; No. 2, 9@10. White clover, extracted, 6@7; amber, 5½@6; dark, 5@5½. Beeswax, 30@32.

W. C. TOWNSEND,
Oct. 28. 178 Perry St., Buffalo, N. Y.

SAN FRANCISCO.—Honey, new crop comb, per lb., 10@12. Extracted, water white, 6; light amber, 5½; dark amber, 4½@5. Beeswax, per lb., 28@29.

ERNEST SCHAEFFLE,
Oct. 13. Murphys, Cal.

WANTED
FANCY COMB HONEY
In No-drip Shipping Cases.
Also AMBER EXTRACTED
In Barrels or Cans.
Quote your lowest price delivered here. WE REMIT PROMPTLY.
THE FRED W. MUTH CO.,
No. 51 WALNUT ST., CINCINNATI, OHIO.

CINCINNATI.—There is a marked improvement in the demand for comb honey since our last quotations. No material change in the extracted-honey market. We continue to quote white-clover extracted honey in barrels at 7 @ 8½c. Amber, in barrels, 5¼ @ 6. Fancy white clover comb honey at 14@15. Beeswax, 28c.

THE FRED W. MUTH CO.,
Oct. 28. No. 51 Walnut St., Cincinnati, O.

FOR SALE.—10,000 pounds of fine white comb honey.
F. T. VASEY, Menomonie, Wis.

FOR SALE.—10,000 lbs. of fancy extracted honey, clover and basswood. Also 2000 lbs. of the same quality but slightly off color.
GUSTAVE GROSS,
Lake Mills, Wis.

FOR SALE.—Clover and basswood extracted honey in 60-lb. cans. One can, 8 cts.; two or more, 7½ cts. Do not send local checks.
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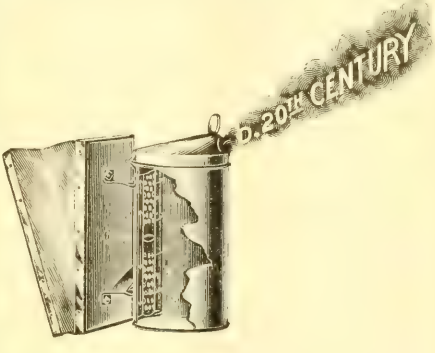

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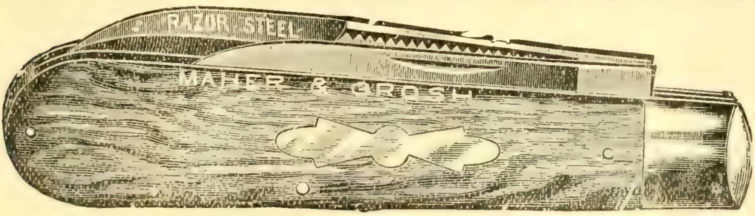

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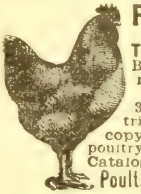

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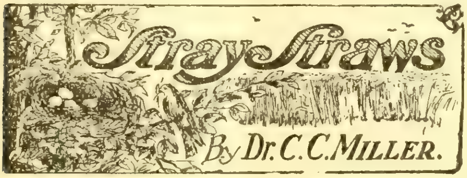


Stray Straws

By Dr. C. C. Miller.

Years ago I did a lot of fastening foundation in frames as described on p. 969, but the present-day kerf-and-wedge plan is away ahead.

"**The best package** for extracted honey is the white iron drums holding about 60 gallons each," p. 986. That would be 700 pounds or more. I'm puzzled to know whether it really means that, or a 60-pound can.

"**What** is the cause of the sour smell I notice about all apiaries at this season of the year?" writes a correspondent. Likely some peculiar honey source. Not all years, but a few years, in my home apiary there has been for a short time a very offensive odor when a hive was opened, and I could lay it to nothing but the honey gathered.

Rotten wood soaked in saltpeter is what the editor says I use, p. 984. Cotton rags, my boy, cotton rags. More convenient in my case. [About this use of saltpeter, there was a time when you used to soak rotten wood in such solution, if I am not mistaken. You lighted one of these pieces, then put in other fuel that had not been so treated. If I am mistaken, I stand corrected.—Ed.]

I'm afraid beginners will understand, from what is said on p. 983, that it's a good plan to put an unfinished super of sections on a swarm as soon as hived. Whether full sheets or starters are used in the brood-chamber, the danger of the the queen going up is sufficiently great to make it advisable in all cases to give no super till work in brood-chamber is started, unless an excluder is used.

"**A popular** fallacy" is what O. O. Poppleton, in *American Bee-keeper*, calls the notion that much more honey can be obtained by extracting unsealed honey than by waiting till it is in right condition. In Cuba he had special advantages for observation, and proves pretty clearly that "nearly or quite $\frac{9}{10}$ of all loss of weight of newly gathered honey in the hive occurs during the first 12 or 15 hours after it is first deposited in the hives." Might be rather severe to say so, but it looks as if the man who puts on the market some of the unripe stuff to be found there is not only dishonest but a fool as well to spoil his market without any compensating gain.

General Manager France, in giving that lot of names as candidates, p. 973, has followed his own notion, not the rule of the directors. The rule is that "the two men receiving the greatest number of votes for each respective office are to be candidates for such office." The spirit and intent of that rule is that those two shall be candidates, *and no others*. If the intent had been that all were to be considered on equal footing, what sense was there in saying any thing about the two highest? When that rule was submitted, I sent an earnest protest to the chairman, but there was no chance for discussion. A little wire-pulling might succeed in giving the highest preliminary vote to two men not the choice of the whole, and the best man for the place entirely shut out of the race. If there had been any chance for discussion, I don't believe the directors would have passed any such rule.

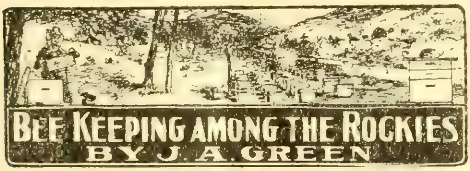
That man Laws told such big stories about such little nuclei that it raised the question whether he wasn't a bit up in the air; but when I saw him and talked with him at St. Louis he impressed me as a very solid sort of man, built from the ground up. He modestly disclaims entire originality as to all his plans, but all the same he deserves great credit for giving us so clearly plans that may be carried out at such a saving. [One of the great benefits of attending a bee convention is to see the very people whose articles we have read for years. Sometimes our impressions are unfavorable and others very favorable, with the result that the articles of that person from that time on command much more attention. Yes, we have known Mr. Laws as being one of the solid men. He has bred queens for many years, and made it almost his exclusive business; and when he says these "babies" will yield good results you may rest assured that, with his conditions, if you follow his directions you will be able to meet with the same success that he does.—ED.]

A CORRESPONDENT in July introduced two fine-looking queens. Queens are laying well, but in each hive he has found at three different times one matured queen-cell in each hive. He asks why. The bees are trying to supersede. They scent afar a failing queen which yet appears all right to you, and it is just possible that sometimes the superseding is a sort of whim. [I believe you are right, doctor. But one thing that bee-keepers should remember is that bees discover signs of failing that do not appear to the bee-keeper. I have noticed cells starting while the queen was apparently doing full duty as well as any queen could do; would remove the cells, but a little later find she was playing out. Whim? Yes, bees take on peculiar streaks. They will at times set aside all known rules, balking the bee-keeper at every move. This is particularly so in the matter of introducing. When a colony gets a whim and decides it will not accept an introduced queen, one might as well give up and let it raise something of its own.—ED.]

SMOKER FUEL of little basswood blocks being preferred at Medina, page 970, is all right. If you say you prefer such fuel on the score of convenience, Mr. Editor, I've nothing to say; but when you speak as if it were intrinsically better, I demur. When you get your mother to say she prefers basswood to oak or hickory as a steady diet in a cook-stove, I'll believe that soft wood is better that hard wood in a smoker. [I have tried both hard and soft wood. The latter ignites more readily, and is a little handier for us to get, for we have carloads of it right handy. But lately we have been using the Coggshall smoker-rolls. They are nothing more nor less than old phosphate-sacks rolled up in rolls of suitable size, and tied with strings. They are then cut to the proper length with a hatchet. One end is then dipped in a solution of saltpeter. When dry, the cartridge is ready for use. We find this very ignitible, and ready to give off a good smoke in ten or fifteen seconds after a match has been applied. They are lasting; and, when prepared in advance on a rainy day, they save a lot of time in the height of the season. We have been thinking that perhaps we might be doing bee-keepers a good service by making up this fuel of the proper size, call them cartridges, and sell them at so much a hundred.—ED.]

"TEACHING a graded span of horses in one lesson of only three hours so they will nevermore be afraid of autos." That heading, p. 988, awoke my intense interest, but I was disappointed not to be told just *how* it was done. My horses are so afraid of automobiles that the women take no comfort in riding. I only wish the machines were plentier, so the horses would *have to* get used to them. Keep on telling us about them, Bro. Root; it will do no harm for us common bee-keepers to dream of the time when the price will get down within our reach. [A great deal depends on the horse. Old horses are much more difficult to educate than young ones. I suppose it is largely because it is "difficult to teach an old bird new tricks." But I have myself trained several horses so that they now pay but little attention to my machine. It requires, of course, co-operation on the part of the horse's owner, and this is the method: The animal is led up to the machine while it is standing still, made to smell of it and look it over. The automobile is started up, and the horse follows it at a point far enough behind where he is not frightened. As he becomes more accustomed to it he is driven closer and closer from behind. The machine is stopped still, then he is made to pass it. He turns around, comes back, meets it, and passes it. Again the automobile is started up, and the horse follows it as before. After a little he can be driven quite close to it, and very soon he can be driven alongside of it. The machine is slowed down, and the horse goes ahead. It gradually catches up and passes the horse. Next the horse is made to pass the machine. The machine is stopped and put at a low pace, when the horse is driven up to it from the opposite direction. If he shows fear, the driver gets out and leads him by the bits, and makes him stand in front of the machine, or near it, until he becomes accustomed to the "choo-choo." The operation of coming up to the machine is repeated several times, until the horse begins to find that the red devil is devil only in name. A colt can always be taught, but some old farm plugs may give some trouble.—ED.]

FEEDING sugar syrup may be a useful thing, says Herr Reidenbach, in *Pfaelzer Bztg.*, when it replaces for winter food objectionable honey-dew or something of the sort, but is in general to be condemned. Honey contains from one to three per cent of nitrogenous matter; sugar, only a trace. This is absolutely essential for brood-rearing, and in general for replacing worn-out tissues. Sugar will keep up the heat in winter, but even in winter there is some wear and tear of tissue, which needs the nitrogenous matter of honey and pollen to replace; and a colony wintered entirely on sugar is to some extent lacking in vitality in spring. A case in point is cited. In 1894 two powerful late swarms were installed on account of their young queens, and were wintered on sugar. They wintered well, but the cold of February was of unparalleled intensity. When they flew in March they were rapidly decimated, and in two weeks every bee was dead, only a handful of dead bees remaining on the floor of each hive, with food left in the hive. Colonies wintered on honey were all right; but these two, exhausted for lack of proper nourishment during the intense cold, were not fit for labor; and when they flew out from the hive they were unable to return. I strongly suspect Herr Reidenbach is correct, and I don't believe I can afford to replace good honey in the fall with sugar, even if I can get for the honey three times the price of the sugar. To be sure, bees have been successfully wintered on sugar year after year, but is it certain that they are just as vigorous as if wintered on honey? [This is a very seasonable question to bring up, and I should be glad to hear from others of our correspondents. We feed sugar syrup only when we do not have sufficient natural stores in the hive. Now, it may be that we had better help out some of our bee-keepers who produce good crops of off-flavored honey by buying those crops and feeding to our bees. Of course, we need to know that no foul brood exists in the yards in which such honey was produced. If we have no means of knowing, then what? Heat the honey thoroughly, then give it to the bees when it is warm, when they will take it down quickly; but unfortunately sugar-syrup of the best granulated sugar is as cheap per pound as the cheapest honey we can buy, and no knowing whether that honey would bring on dysentery in the spring.—ED.]



BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

E. F. Atwater recommends a strip of tin ⅜×3 folded over the top-bar, and nailed to the ends of following boards to keep them from pulling to pieces. That would keep the top-bar from pulling off, but that is not the only place where they come to pieces.

* * *

H. S. Groves tells me that he has had good success introducing queens by a combination of the "drowning" method and the old one of rolling the queen in honey. He dips the queen into honey well thinned with water until the "uppishness" is all taken out of her.

* * *

If you are in a district where foul brood is prevalent, be very sure that no diseased colony goes into winter quarters. If you have a full set of sealed combs, you can shake the bees on these after it is so late that brood-rearing has stopped entirely. If you have not these, better destroy bees and combs than to run the risk of trying to winter them.

The Paonia fruit-growers appear to have about given up the idea that the bees are responsible for the spread of pear-blight. It will be remembered that it was reported that the fruit-growers had bought up all the bees and sold them at auction on condition that they be removed from the locality. This was not done, however. Some experiments were made, such as confining bees to certain trees, and excluding them from others, but nothing seems to have been conclusive. Nothing was proved against the bees, and the whole matter appears to have been dropped.

* * *

A bee-keeping friend tells me that he sells a great deal of dark honey to a confectioner who uses it in the manufacture of high-grade candies. This is comb honey, mind you, not extracted honey. When I first heard this I thought the buyer had the idea that he had to buy it in the comb to be sure of a pure article, but it seems he has an altogether different reason. The whole thing, comb and all, is put into the candy. He claims it makes it "stand up" better. That is, I presume, it endures better the changes of temperature and moisture. I had heard already of using paraffine for this purpose, but he claims that the honey-comb is superior. It is possible that here is a market that might profitably be cultivated and enlarged.

* * *

Dr. Miller wants his hive-covers filled with wind, and tells us they stay flat without compulsion. Doubtless they do in Marengo, Dr. M., but I have come across a few double covers here that were pitifully ramshackle affairs after several season's use, that I would hate to depend on to keep the top of a hive tight. A fairly satisfactory cover, though usually not a beauty, is a good board well cleated at the ends, with an "upper deck" of thin boards, usually shingles, to keep off the sun. I rather think I prefer my shade-boards separate from the cover.

[Other correspondents have reported the same thing in regard to these double covers. A cover that would answer nicely in Marengo might give a good deal of trouble in Colorado.—ED.]

* * *

A correspondent writing about the small nuclei for queen-rearing says that they worked nicely early in the season, but later were complete failures. Just my experience. Like Dr. Miller, I crowed too soon. After getting to the point where I was getting very satisfactory results from them, all at once failures became more numerous than successes. I think the cool nights we have here in the fall do not agree with them. I believe I shall use two combs instead of one hereafter.

[Our little nuclei worked clear up through the month of September; but you remember we were practicing at the time outdoor feeding, which kept all the colonies and nuclei in the apiary in a high state of prosperity, just about as we would get from a natural honey-flow. If you had fed in this way you would have found that the baby nuclei would have done as well as in the early part of the season, I think.—ED.]

* * *

Some bee-keepers believe that their bees have been poisoned by the spraying of orchards—not by spraying when the fruit-trees were in bloom. We have a law against that, though I fear some would have disregarded the law the past spring if the weather had been suitable. But in many orchards, and along the irrigating ditches that border or run through most orchards, there is a great deal of sweet clover. This is in bloom all the season, and the powerful power spraying-outfits in use here distribute the poisoned spray impartially over every thing in the neighborhood of the apple-trees. It is quite likely that in some cases there has been some damage done in this way, but there seems to be no way to prevent it unless the bee-keeper himself undertakes to keep the sweet clover mowed in the orchards of his neighborhood. Very likely the remedy would be worse than the disease.

* * *

The opening of the Uintah Indian reservation is of special interest to the bee-keepers of the West, since it will open up a large tract of irrigated territory that will make the finest kind of bee-range. The last Indian-appropriation bill provided for the opening. The original bill fixed October 1, 1904, as the date of the opening; but because of the amount of work to be done in making surveys and allotting lands, the opening was postponed by act of Congress until March 10, 1905.

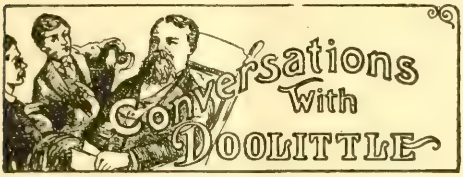
The Uintah reservation lies in the northeastern part of Utah, in Uintah and Wasatch Counties. In area it comprises 2,334,000 acres of mountain and valley. In altitude the reservation ranges from 4000 feet in the lower valleys to 13,000 feet on the summit of the loftiest peaks of the Uintah range, the highest in the State. There are several fine streams of water which rise in this range, traversing the lower valleys and finally emptying into Green River. All of these streams can be easily diverted for the purpose of irrigation, making this one of the best-watered sections of the State. After making allotments to the Indians, the remainder will be open to entry under homestead provisions, each man being allowed 160 acres. There will undoubtedly be a great rush for this land, and it is probable that all applicants will be registered, and the land apportioned by lot, as was the case with the Rosebud reservation recently opened up.

* * *

HOFFMAN FRAMES.

The symposium on Hoffman frames shows that my articles on that frame have stirred up quite a hornet's nest among the bee-keeping fraternity. It is quite natural that we should not all think alike. It appears, too, that some of our differences of opinion arise from the fact that we are not thinking about the same thing. My article on page 930 mentions insufficient space back of the follower as one of the faults of the frame system. Some of my correspondents say there is too much space back of the follower, enough for an extra follower. Since that article was written I have handled a great many more hives containing Hoffman frames, and I find that it is true that there are a great many hives in use in which there is too much space, so much that comb is built back of the follower whenever the bees are crowded for room, the effect being the same as or worse than when the smaller space is allowed. I do not know who were the makers of these hives, nor have I measured them to know what was the exact inside width; but I know that in some cases, at least, the hive is wide enough to allow an extra frame to be crowded in. I inspected an apiary to-day in which three adjoining hives of the same inside width contained respectively seven, eight, and nine Hoffman frames. Talk about inexpert help being compelled to space Hoffman frames correctly! It can't be done! I have seen loose hanging frames that looked worse than Hoffman frames, as regards spacing, but I doubt if I ever found any that did not handle easier, other things being equal. As to using the Hoffman frame for extracting, the one who uses the regular Hoffman brood-frames, crowded up close together, for extracting-frames, has yet to learn one of the most elementary principles of profitable extracting. If he spaces them far apart, the Hoffman frame has absolutely no advantage over the plainest kind of hanging frame, while in several respects it is inferior. Whatever may be the good points of the Hoffman as a brood-frame, it is certainly not fit for an extracting-frame unless specially made for that purpose. As a brood-frame under extracting-frame, though, it will keep in far better shape for handling than under comb-supers. It is true that the thick and wide top-bars of the Hoffman frame will have less burr-comb built above them than thinner and narrower bars, especially if the latter are so thin that they sag at all. It is also true, that, if the bees are ever crowded for room, there will be many more brace-combs built between the thick top-bars than between the thinner ones. This not only increases the difficulty of handling, but kills many more bees. I can see no advantage in the use of two followers. Better use only one, and have it the right thickness, even if you use only nine frames in a ten-frame hive. Now, please remember that, in spite of all I have said against the Hoffman frame I believe that, as a brood-frame, it may be entirely satisfactory when always handled by intelligent and careful operators.

I am not arguing against fixed-distance frames. I use them myself, expect to always; and if I were starting over again I would use nothing else. But if I were using Hoffman frames I would keep them crowded together by thumbscrews or by springs. Thumbscrews are hardly adapted to the careless operator; but it is possible that the use of springs would rid us of some of our troubles. They must be made properly, though. I never got any springs before the present season that would have been satisfactory.



LOSS OF BEES ON SNOW.

"Good evening, Mr. Doolittle."

"Good evening, Mr. Smith."

"Evenings are getting quite long again."

"Yes, and I am reminded that winter will soon be upon us again. Have you your bees ready for winter?"

"Very nearly so; and as I was fixing several colonies to-day for leaving over winter on their summer stands, I said to myself that I would come over and see you to-night, and ask you if there was any thing I could do at this time of the year to prevent the bees from coming out and dying on the snow as they did last winter."

"Do you think you lost many in that way?"

"I certainly do. Some days it seemed as though the ground was fairly covered with bees about the hives. Last spring many of my colonies came out weak in numbers, and I thought the cause was their dying so on the snow. Is there any way to prevent their coming out of their hives during cold days in winter in this way?"

"I will give you my plan to prevent such loss. But before I do this I wish to say that there are two causes for bees acting thus, one of which is bee-diarrhea, and the other the direct rays of the sun in and about the entrance."

"Is it bee-diarrhea that ails them when they come out and drop their excrement on the front of the hive, and all about on the snow as soon as they take wing?"

"Yes, that is the trouble where you see such a state as you mention; and where a colony has this disease the bees might as well die on the snow as anywhere, for die they will if the disease takes hold of them early in the winter, or before there is any prospect of warm weather coming to stay."

"Is there no way of helping them?"

"Not that I know of while it is cold weather, for all the fussing that I have ever done with them seems to be of no avail, but, on the contrary, as a rule it seems to hasten their death, if any thing, unless there comes a prolonged spell when they can fly freely to void their excrement, and then, four chances out of five, they will dwindle down to such an extent before many young bees emerge from their cells that such a colony will be nearly or quite worthless."

"Well, that must have been the trouble with a part of mine last winter, for several of the colonies that came out so weak had the front of their hives all spotted over, while some of the combs were badly befouled near the entrance also. But what about the sunshine?"

"If the trouble is caused by the sun enticing them out when it is too cool in the air for them to fly, the cause should be removed by shading the hive."

"How is this done?"

"As the sunshine of February and March is apt to entice out all bees, more or less, by making the front of the hive and alighting-board near the entrance quite warm by the heat thereof, while the air just outside of this sunny nook is too cold for them to exist in, should they believe from this warm place that the air is warm enough for a fly; and as the winds of winter are apt to blow cold air and snow in at the entrance of the hives, thus making the bees uncomfortable, I prepare a board nearly as wide and as long as the front of the hive, and put it in place at the beginning of winter."

"Please tell me how you fix it to the hive."

"I set the foot of it out away from the hive some four or five inches, and then lean the top up against the hive just under the cover. Fixed in this way it not only shades the hive, but it keeps out wind and snow as well."

"Do you leave the wide board thus all winter?"

"Should a day warm enough for the bees to fly occur, and I am at home, I take the boards down, laying them immediately in front of the alighting-board, thus forming a nice spot, free from snow, for them to alight on, and very many take advantage of this board, let me assure you."

"When do you put the board back again?"

"At night I go out with a broom, and sweep all dead bees which may have been dragged from the hive away from the entrance and off the alighting-board, when the wide board is put in place again, ready for any sun, snow, or cold wind that may come in the future."

"But suppose you are not at home on any warm day."

"If I am not at home, no harm is done, as the bees will fly out around the ends of the board, and come back the same way, if the weather is really warm enough for them to have a reasonably good flight."

"The shade-boards will make some extra work."

"Yes, that is right. Some seem to think that this winter care of bees is too much work, but unless any bee-keeper's time is worth $5.00 a day during the winter at something else, I think he will be the loser by not taking the small amount of time required to do these things properly."

"Well, I think I will try a part of mine, at least, that way this winter and see how I like it."

"There is one point wherein some are deceived regarding dead bees on the snow.

Bees can rise as safely from melting snow as from bare ground, if the air is only warm enough, and the board which is leaned over the entrance tends to keep the bees in the hives, and quiet, if they are not diseased, till the air is what it should be as to warmth."

"What is the necessary degree of heat?"

"I find it to be 45 in the shade, providing it is still, with the sun shining; yet with even a warmer temperature the snow will often appear covered with bees, which the inexperienced are prone to believe were lost because the snow was on the ground. A little careful watching will show that these dead bees are those brought from the hive and dropped by the other bees while they are house-cleaning. This house-cleaning is always going on when the weather will permit of a flight, and at such times all the bees which have died during the cold weather which has preceded this flight are carried out of the hive by the healthy bees; and where these dead bees are not too heavy the healthy bee rises in the air with the dead one, conveying it some distance from the hive, when it is dropped on the snow."

"That is something I had not thought of; but I know it is so, for I have often seen a bee fly with a dead one on such winter flight."

"Again, 500 dead bees on the snow make more show than 10,000 would make on bare ground. For these reasons we are often alarmed when there is no real occasion for it. I suppose you have your bees in chaff hives?"

"No. Would they be enough better in such hives to pay?"

"I think so. Chaff hives are a great protection for bees in winter, not only from extreme cold, but in not allowing the rays of the sun to entice the bees out under unfavorable circumstances; and if you expect to winter your bees on the summer stands for any term of years I would advise you to use chaff hives for that purpose in this northern latitude. But even with chaff hives I think it pays well to use the wide board over the entrance."

"Did that clock strike ten? I must be off. I told my wife that I would probably be home by nine. This has been a short evening, I have been so interested."

Editorial
By E.R. Root.

In my write-up of J. B. Mason's bee business at Mechanic Falls, Me., October 15th Gleanings, I made the statement that his home was located two miles from town. He calls my attention to the fact that it is only half a mile, and that his bee-keeping friends stopping between trains would have plenty of time to call and see him.

KODAKERY AT THE HOME OF THE HONEY-BEES.

Like Bro. Hutchinson, one of my hobbies is picture-taking; and when I can combine this delightful pastime with business I am happy. When taking pictures of our manufacturing plant I have often wished that I could elevate myself at such a height and angle that I could take a real bird's-eye photo—something exactly true to life. True it is that an artist can be hired who will hand-paint a mind's-eye picture; but the general public know that these mind's-eye views are not real true bird's-eyes because they are often exaggerated. If I could elevate my camera at the proper height, and then by some means operate the shutter, I could secure what I was after.

I once had the boys make a monster kite. So big was it that my nephew, who had been entrusted to hold the line, was dragged some distance by the big thing in the air over a potato-patch, until he yelled for help, for he had tied the line to himself so as to make sure it would not get away; but the big kite swayed and ducked most magnificently; but after a few trial flights I became satisfied it would not do. The matter dropped until the panoram-kodaks were advertised. These are special instruments that will take in a very wide sweep of country. One can stand in a certain position, and not only catch in one view objects directly in front of him, but also objects at the extreme right and left. I sent for one, and took a number of exposures of our plant. While this instrument is adapted to only a very limited class of work, it answers an excellent purpose for some views that can not be obtained in any other way. For example, I stood at the door where the men mark their time as they come to and from work, and took an exposure of the court between some of the main buildings. The result was quite a surprise, and is reproduced for the benefit of our readers on another page.

On the left we see a portion of the room where the goods are packed after being manufactured. The lower two-story structure further down represents the power plant, comprising a 400-horse-power engine and boiler; a 30-horse-power engine; a 12-horse engine; a 100-horse-power dynamo; an 80-horse, and a 12. They distribute power all over the plant. Just beyond the power plant are wood-working shops that reach clear up to a large lumber-shed, a building that is very much larger than those shown in the picture. At the extreme right are the machine-shop and tin-shop; and in the right foreground is the foundation department where all the Weed machinery is installed. The runways connect the several departments with each other. Elevators stationed in the various buildings bring the goods up to the various levels, and the runways convey them to the different points on trucks.

In subsequent issues I hope to present other panoramic views that will give our readers something of an idea of the enlargements that have been going on in the manufacturing plant of The A. I. Root Co. during the last few months.

UDO TOEPPERWEIN.

On page 1026 of this issue we show an interior view of the office of Udo Toepperwein, the young man who has done such a large business in the way of selling supplies in San Antonio, Texas. I wrote to Mr. T., asking him to tell us something about it, and here is his letter, which will be self-explanatory:

> *Mr. E. R. Root:*—I hardly know what to tell you regarding it, unless you want a few words of what we are doing here; and in that case I would simply have to say that we are very busy all the time, and the photo was taken just as we are at work every day; and none of us, except myself, knew anything of the picture to be taken before about five minutes previous to its having been taken. I was just reading a letter from a customer, sending in an order. He wanted his goods by return train, and, if I am not mistaken, the order contained 17 bee-hive bottoms, 13 R covers, a dozen Danzenbaker hives complete, one of them to be nailed and painted as a sample, besides a lot of other goods of various kinds, and he wanted to know all about how to transfer his bees, and in return told me all about his experience in bee-keeping in the past. This is the reason I look so bothered in the picture, as I had no more Danzenbaker hives nailed an dpainted; and since it takes quite a while to fill an order of this kind in a rush, I did not know whether I could give him prompt service, and my other customers also, as I usually fill orders in rotation.
>
> Sitting at the desk next to me is the shipping clerk making out orders. At the window is his assistant receiving money for a shipment of honey which has just been delivered by the driver, who is just outside of the window, handing it to him. At the typewriter is our Miss Kate Nentwig, who writes all of these trouble letters. She is not quite as old as she looks, for she is only 14 and not 40; but, nevertheless, she can write the letters all right which you see before you. Just outside of the fence is one of our young men who just received a cake of wax by express, and is bringing it in to weigh it.
>
> UDO TOEPPERWEIN.
>
> San Antonio, Tex.

The young lady who wrote the letter referred to writes scrupulously clean copy, carefully and accurately punctuated, which at the age of only 14 is very remarkable. Mr. T. is to be congratulated on the help he has, and the business he has been able to build up. He has had large experience in producing honey; and, being a native of Texas, he thoroughly understands the conditions that confront the bee-keepers of that great honey-producing district.

Oh, yes! I should not forget to state that Mr. Toepperwein's hat has grown too small for him—he has a nice baby boy at his home.

SIDELIGHTS FROM THE NATIONAL CONVENTION AT ST. LOUIS.

IN our last issue I promised to give a few sidelights or snapshots of the big convention. In doing so I shall not attempt to follow any specific order, but give a few of the things said and done, just as they occur to me at random.

Mr. Hutchinson, in the *Review*, has called attention to the fact that this was not a convention where very much was said, but a good deal was done in the way of *transacting business*. It is indeed a fact that this meeting did more real business of an important kind than many of the preceding ones. Some things had reached a crisis. For example, the question of what we were to do with the constantly recurring comb-honey lies as they come out in the standard magazines and journals of the country was thoroughly discussed. Instead of wrangling and talking to no purpose, wasting valuable time, committees were appointed—excellent ones too—that will take hold of the problem in a way that I believe will mean the rapid curtailment of the disease, for that really seems to be what it is. It is violently contagious; for when one newspaper breaks out with the infection, dozens of others seem to catch it. The corrective remedies that have been hitherto applied have been only partially effective. In our last issue I called attention to the fact that a committee had been appointed to wait on some of the leading dailies of St. Louis, and how the facts the next morning were so garbled as to be unrecognizable to the members of the convention, especially to the members of the committee. The press was waited on again, with more favorable results, although the published items were not then entirely satisfactory.

The convention went on record as saying in most emphatic language that there is no such thing as manufactured comb honey, and never had been. It was voted to offer $1000 for evidence going to show that machine-made comb honey was on the market. Some of the members of the convention themselves offered smaller sums. The news of these doings got into the papers, and I have seen several items that are very satisfactory. Later on, the chairman was instructed to appoint a committee of 15 representative bee-keepers, members of the Association, scattered in all parts of the country, who shall make it their business, whenever there is an outcropping of one of these lies, to follow it up with the moral force of the 2000 membership of the Association and secure a retraction. Such committee was not immediately named, but will be given in the official report.

A NATIONAL HONEY EXCHANGE.

At two of our late conventions an effort has been made to organize a honey exchange that would be national in character, along the lines of exchanges that are already in successful operation in Colorado, California, and elsewhere. At the St. Louis meeting, Mr. F. E. Brown, of Hanford, Cal., read a paper in which he urged the very great importance of having such an organization, and that in his opinion the time was ripe for its formation. He would have a stock company made up of hundreds and perhaps thousands of bee-keepers, each owning a limited number of small shares of stock. As a result of his recommendations a committee of five was appointed to draft a constitution and by-laws defining the nature and scope of the proposed organization. The movement received substantial encouragement to the extent that something like $700 at $25 a share was subscribed. While this, of course, is not a large sum, it was felt that it was an entering wedge.

Somehow or other the impression seemed to obtain that this organization would suppress the dealers in bee-keepers' supplies, and a little discussion was raised over the point as to whether it should undertake to handle supplies as well as buy and sell honey of the bee-keepers. There was nothing in Mr. Brown's remarks, nor in those of any of the members back of the movement, that to me indicated any thing of the kind, at least for the present. The main thought seemed to be that the new organization should confine itself to the question of handling honey, so that the bee-keepers could secure a fair price. The character of the men back of the enterprise is such that I do not think that they will be unwise enough to bite off more than they can chew, as the expression goes; in other words, cripple an organization at its very inception by making an attempt to do more than it can really carry out successfully. Mr. Brown seemed to be strongly of the opinion that, for the present at least, the exchange should devote itself exclusively to the question of bettering conditions in getting honey from the producer to the consumer. This will be a big problem of itself, and will require the best efforts of the organization to solve it.

The impression seemed to prevail among a few that the Root Co. would be hostile to the new-born baby; that it and the other manufacturers of the country would be glad to see it die a natural death. I do not see any reason why the bee-keepers of the country should not combine to protect themselves; and if a manufacturing concern should try to frustrate their efforts it would only lose in the end. The Root Co. believes that the greatest good to the greatest number will be also the greatest good to the supply interests. If prices keep on falling the dealer eventually would have no orders.

A COMMITTEE ON NATIONAL LEGISLATION.

A committee of three was appointed to look after national legislation, consisting of H. S. Ferry, W. F. Marks, and C. P. Dadant. Pure-food measures of very great importance are coming up, and will come up in Congress, and this committee will doubtless see to it that the interests of bee-keepers are properly taken care of by seeing to it that suitable memorials are presented at the proper time and place. All these three men, I happen to know, are very active, capable, business men; and when the pure-food question comes up again, as it surely will, we may rest assured that *something will be doing.* When they ask you to write your Representative and Senator, do so at once.

BRANDING AND ADVERTISING HONEY.

Following the reading of an excellent paper by Mr. York on advertising and selling honey, there was considerable discussion on the question of branding honey—that is, putting an Association brand of purity on honey put out by its members. Mr. Brown, of California, made a strong plea in favor of such brand, for he knew that much of the honey sent out from California in square cans was adulterated before it reached the consumer, and as a legitimate result California honey received a black eye at the hands of the consumer. He drew attention to the fact that in California the bee-keepers have decided that their packages must be sealed, after being graded by a grader appointed by their special organization. If the seal is broken when it reaches the consumer, naturally enough he would have to take his own chances as to the purity of the goods; but if the seal was unbroken, then the local association will be responsible for the character of the honey under such seal.

Dr. Miller and others were very firm in the belief that the time had come for the Association to adopt an official brand. Mr. Benton indorsed this position, and then stated that, in his official capacity as apicultural expert in the Department of Agriculture, he was planning to get out a "Farmers' Bulletin," on the subject of honey and its uses, the same to be issued free to the general public. Possibly 50,000 of them might be issued. A motion was carried, to the effect that Mr. Benton be requested to prepare such a bulletin as he had outlined, and put it on the list of farmers' bulletins, for free distribution.

Mr. Abbott urged the importance of getting out a very small leaflet—one that could be issued at once; and he moved that it be the sense of this meeting that the Board of Directors of the National Association be requested to prepare such a circular, and furnish them free to anybody who will distribute them in any way he may see fit. The motion was carried.

Mr. Hershiser emphasized the importance of advertising honey, and the methods of producing the same, in the public schools. He went on and told what had been done in the schools of Buffalo; how he gave a series of lectures before the schoolchildren, an account of which has already been given in these columns.

The discussion developed the fact that the schools of the country were taking up nature study, and especially bee-keeping; and the Root Co. knows there is a general demand for little circulars, books, and pamphlets, which will give the teachers material which they can lay before their pupils.

Other suggestions were made along the line of getting local bee-keepers to secure the publication of articles on the general subject of honey as a food, in the local papers. The discussion finally wound up with the following resolution:

Resolved, That the National Bee-keepers' Association in convention assembled send its congratulations to the Pure-food Congress for their labors in behalf of pure food, in the hope that they may be successful in securing pure-food legislation.

The motion was carried. A committee of three was then appointed to present the resolution to the Pure-food Congress, then in session on the World's Fairgrounds.

(*Continued.*)

AN EXPLANATION FROM W. Z. HUTCHINSON.

In justice to myself and my fellow-members of the National Association, an explanation is due them before they cast their votes for officers this month. When I noticed that my term of office as Director expired this year, and considered that Mr. Brodbeck's continued ill health would probably prevent him from again accepting the Secretaryship it seemed to me that it might be better if I were elected Secretary instead of Director. Correspondence with Mr. Brodbeck brought out the fact that he not only did not care for the office, but would not accept it. I thought of mentioning the matter in the *Review*, but feared that I would be accused of using it to further personal ends. The only course opened seemed to be that of addressing a circular to the members, and, with the approval and consent of Mr. Brodbeck, I sent out the following:

A PERSONAL REQUEST FROM W. Z. HUTCHINSON.

Flint, Mich., Aug. 13, 1904.

My Bee-keeping Friend and Fellow-member of the National Bee-keepers' Association:

Inclosed you will find a copy of a notice that will appear in all of the bee-journals for August. In that notice you will see that my term of office as a Director expires with this year, and I would ask you as a favor not to nominate me again to that office. I should like, however, to see Michigan still represented on the Board, and I know of no better man for the position than R. L. Taylor, of Lapeer. Mr. Taylor is fair-minded, well-educated, has practiced law several years, been twice elected Prosecuting Attorney for his county, served two terms in the legislature, and has been for years an extensive bee-keeper. As there is no lawyer on the Board, his election would be unusually desirable.

While I do not care to retain the office of Director, and should prefer to see Mr. Taylor elected in my place, there *is* an office which I think I could fill with satisfaction to both the Association and myself, and that is that of *Secretary.* The prosperity of the Association is largely dependent upon the holding of successful annual conventions, and the success of the annual convention depends largely upon the Secretary. It is he who must know everybody, know who rides this hobby and who that, and thus be able to assign the right topic to the right man. It is he who must write to this one and that one, and encourage and enthuse and bring together a big crowd of the flower of the country. Then the report of the meeting must be gotten into good shape, and published.

I don't think it is egotism when I say that I think I am better fitted to act as Secretary than I am to fill any other office in the gift of the Association. Don't think that, in wishing for this office, I simply have in mind the paltry salary or the little fame that may come for work well done, but I have deeply at heart the welfare of the Association, and desire that position in which I believe I can render it the most efficient service.

I am aware that, in sending out this circular, I am doing something out of the ordinary; but it is the only way in which I can let you know these things, and I have been doing things "out of the ordinary" all of my life. I don't always ask myself if this is what other folks would do, but, is it a reasonable, sensible thing to do? If it is, or I think it is, I do it.

Now, then, if you think I would make a good secretary, and you would like to see me elected, send your vote *now* to Mr. France and thus help nominate me, and, if I receive the nomination, vote for me again in November and help elect me.

By the way, you can use the inclosed slip in voting, if you wish, writing in the names in the blank, adding your own name and address on the margin, and then, enclosing it in an envelope, mail it to Mr. N. E. France, Platteville, Wis.; or, if you prefer, you can write out the list on a postal. Don't forget or get it mixed. I should like to have you vote for Mr. R. L. Taylor to succeed me as a Director, and I should like to have you vote for me as *Secretary.*

Thanking you in advance for any favors in this direction, I am as ever yours, W. Z. HUTCHINSON.

All would have passed off smoothly had I not made the mistake of sending this circular to only a part of the members. To print the circulars, envelopes, and address them, and pay the postage, was quite an expense. If I sent it to all of the members it would cost some $25 or $30. It occurred to me that it would not be necessary to send this circular to *all* the members—that if sent to half of them it would accomplish its purpose. That this might be considered unfair did not occur to me. It seemed as though I had a perfect right to ask just as many as I pleased to vote for me, and that I was under no obligation to ask all because I had asked a part. I think *now* that all should have been treated alike. I did not intend to slight any one, but, as the sending out of that circular letter, in the *manner* in which it was sent, seems likely to cause ill feeling and division in our ranks, I hereby withdraw my candidacy and most urgently request my friends to cast their vote for some one else.

When the members met in St. Louis, and compared notes, this man had received a circular and that one had not, and it was very natural that a "scheme" should be suspected. Hints of the feeling that existed came to me from various sources; but there was nothing definite, or in such shape that I could come out publicly and explain.

I make this explanation because I prefer to sail under my true colors, even if by so doing I may stand lower in the estimation of my friends.

Right here let me say that Mr. R. L. Taylor knew nothing whatever of the sending out of the circular.

Now, then, having made my explanation let me go a little further. Whether or not my course is deserving of censure or praise, there ought to be *some* method whereby candidates may be discussed in advance of nominations, without any *stigma* being attached. If an officer does not desire reelection he ought to be allowed to say so.

I have published this matter in GLEANINGS instead of the *Review* for two reasons: It reaches a larger number of members than are reached by the *Review*, and it will reach them before they begin voting this month, while the *Review* won't reach its readers until the month is half over. Thanking Bro. Root for his courtesy in this respect I am as ever yours, W. Z. HUTCHINSON.

OVERSTOCKING.

Outyards vs. One Large Yard; a Most Remarkable Yield of Honey in an Off Year.

BY E. W. ALEXANDER.

We send you a photo of our apiary, also a report of our honey crop of 1904. My only reason for sending this report for publication is that I am very much interested in this subject of overstocking. I was in hopes I could get a picture of our whole yard; but on account of the ground sloping both to the south and east we could get a view of only about 400 colonies, or a little over half of the apiary.

The small building in the center is the extracting-house, with the pipe that conveys the honey to our large tanks in the storehouse. After winter and spring losses were over we had 500 colonies May 1, in this yard, which we increased to 725 about the middle of May, and reared about 600 queens.

In regard to this location, let me say that we seldom get any surplus until August. Of the 19 years that I have kept bees here there have been only four seasons when we got any surplus honey until our buckwheat harvest; but this season we got a fine lot of light honey in June and July; but when our buckwheat harvest commenced the weather turned cool, cloudy, and wet, so the bees could find honey only a day or two at a time, although there were thousands of acres of buckwheat in full bloom within two or three miles of them. Still, we have had about an average season. The largest yield we have ever had was 149½ lbs. per colony, spring count. That was an exceptionally good year. This year, since weighing up our honey, we find we have 141½ lbs. per colony, spring count, or a total yield of a little over 70,700 lbs. extracted honey from this one yard, including 80 sections of comb honey. In addition we have had 3600 sheets of foundation drawn out into nice extracting-combs.

To me the success of this large apiary this ordinary season goes a long way to show that I am not so much in the wrong in regard to overstocking as some people think, and I am sure I should have to have more than 1000 colonies before I would go to the trouble of putting any in outyards away from home.

Delanson, N. Y.

[I have long known of Mr. Alexander as being one of the most extensive bee-keepers in York State; but I never knew before that he was managing so successfully so many colonies in one location. I doubt if there are many localities in the United States that will support so many bees without cutting the average per colony away down to a very unprofitable basis; and we are, therefore, forced to conclude that the location must be a most remarkable one. We may rest assured there is no room there for another bee-keeper; indeed, it would be practical downright robbery to locate in the vicinity after reading this article about this remarkable yield.

Mr. Abram Titoff, the representative from the Russian government, who has been studying bee-keeping at Medina, spent some time with the Alexanders in the height of the season, helping them to extract, for I had directed him to them, as I believed they were the only extensive bee-keepers in the United States who had a crop. He came back with a very glowing account of what he had learned and seen. We should be glad to have Mr. Alexander tell us something about his methods of extracting.

The little house in the middle of the ground appears to be a little extracting-building. While it may be portable, apparently it is not toted around, for the bees are all in one yard. It is too bad we could not have had the apiary all in one view. Some time when I get down in that vicinity I will take along my panoram, which will easily show the whole yard.

Mr. Titoff tells of his experience at this remarkable yard, and this I am glad to place before our readers.—ED.]

WHAT A RUSSIAN THINKS OF THE ALAXANDER YARD.

When the editor of GLEANINGS informed me that he had received from E. W. Alexander & Son a report of the season's honey crop, and intended to publish it in his journal, I requested the privilege of expressing my views with regard to that apiary.

In some American bee-papers I read reports of bee-keepers showing the greatest amount of honey produced; e. g., 130 to 150 lbs. and more per colony. Some say this is nothing more than natural—that bees *may* produce such an amount of honey; others discredit it entirely, believing it impossible unless bees are fed sugar syrup. The report of Mr. Alexander will probably appear to some to be exaggerated, and for this reason I desire to say a few words regarding what I *know* of Mr. A.'s method of work.

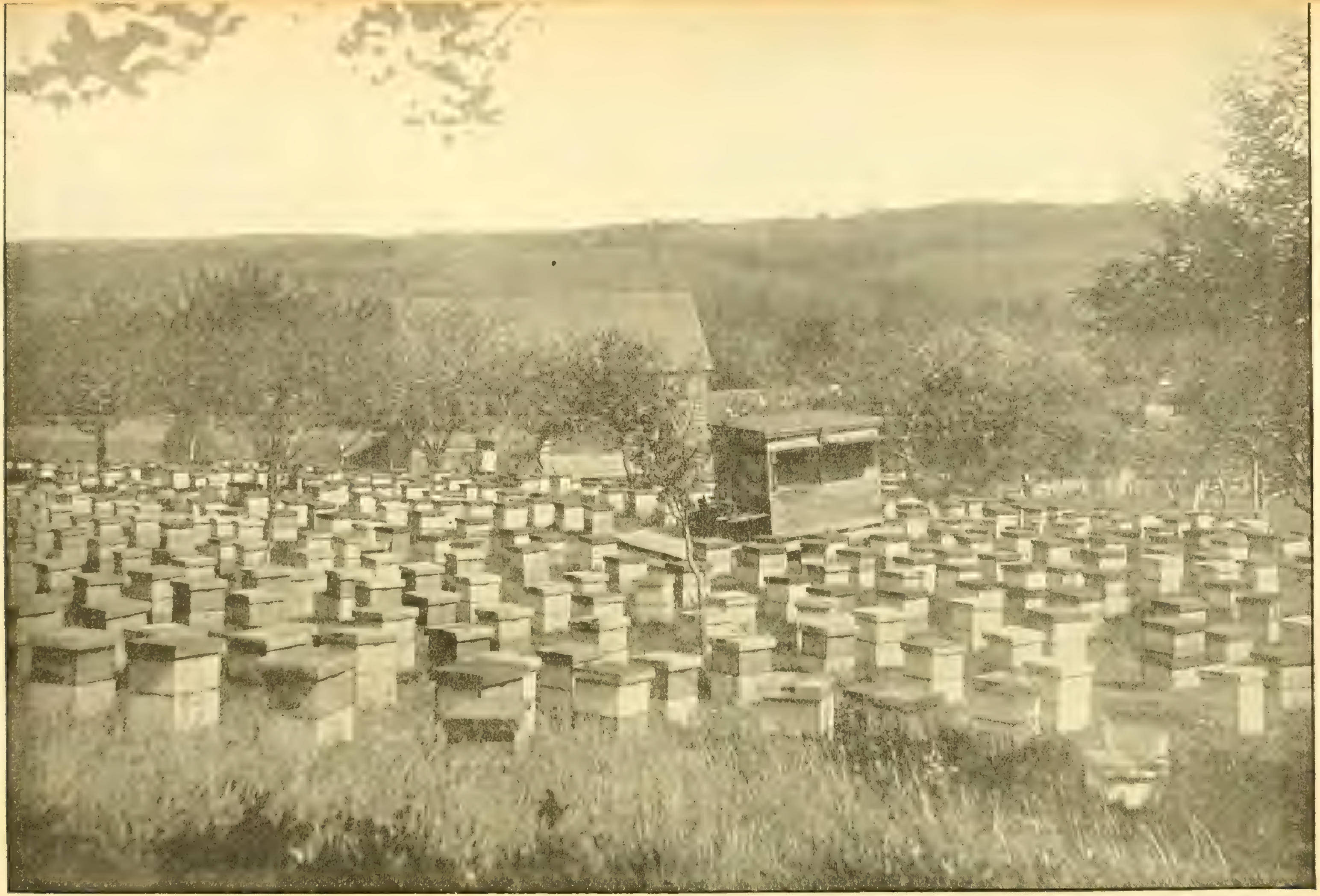
I have been traveling in the United States a little to see the difference in methods of bee-keeping; and through the recommendation of The A. I. Root Co. I spent a little more than six weeks with Mr. A., and became interested in his methods. I went there about the 15th of July. The clover harvest was finished, and bees were working on the basswood. Up to that time, at least 15 tons of honey had been gathered. During my stay there we got about 20 tons; and now what I want to say is, it was *all pure nectar* from flowers, the most of it being taken from clover, basswood, buckwheat, and goldenrod.

Such an immense honey crop is explained, first, by good location; second, by a good strain of bees; third, by a good manager who has thorough knowledge of his business.

The method of Mr. A. is very simple; expenses are nominal, and consequently the business profitable. I do not regret having spent my time there, as I received some new ideas which are valuable to me.

Medina, O. A. TITOFF.

[I have understood that some of these enormous yields of honey from American yards have been discredited in Europe; it is, therefore, no small gratification that a representative from the Russian government has been here, seen with his own eyes, and can make the statement he does voluntarily. He could make the same statement of thousands of other yards he might visit.—ED.]



A PARTIAL VIEW OF THE ALEXANDER YARD OF 725 COLONIES THAT PRODUCED THIS YEAR 70,700 LBS. OF HONEY AND 600 QUEENS.

FEEDS FOR BEES.

Cane, Beet, and Palm Sugars; Cheap Sugars for Bee-feeding; an Interesting and Instructive Article.

BY W. K. MORRISON.

Feeding bees is one of the most important items in the management of an apiary, whether the location is north or south. For some occult reason this phase of bee-keeping has been somewhat overlooked of late by our periodical literature, so that a word or two on the subject may not be out of place just now.

To feed bees is far more of a science than it is generally supposed to be by many authorities, as I shall endeavor to show. Most bee-keepers are fully aware of the value of sugar syrup in stimulating brood-rearing in the spring or just before a honey-flow, or in the case of a colony that is short of stores for winter use. But a great field for scientific feeding lies beyond this, practically untouched as yet, which the bee-keepers of the future will have to explore before any great advance over present methods can be expected.

At present cane sugar forms an easy first as a bee-food. Right here let me say I am well aware that milk sugar and beet sugar are both denominated "cane sugar" by chemists; but the bee-man who would use milk sugar as a substitute for cane sugar would be wanting in common sense, even if the price were the same. Any one who is interested in this matter can not do better than to get a sample of milk sugar and compare it with the ordinary sugar of the grocery, remembering that both are *exactly* the same, chemically speaking. I think all will agree with me that there is a very wide difference between the two, both to the eye and the palate. Beet sugar in a highly refined state may pass for refined cane sugar, and for some purposes may be superior to it—for example, in making fruit-syrup for soda-water fountains, where a syrupy taste is not wanted. In a raw state beet sugar contains a bitter principle, whereas raw cane sugar (concrete) is an excellent food for bees; and if it is kept clear of dirt, and carefully handled, it looks and tastes very much like maple sugar. Only an expert could tell the difference. Be that as it may, American bee-keepers nearly all use cane sugar, for the reason that only a small proportion of the sugar consumed in the United States is beet sugar. There is one feature of this question that is altogether overlooked, and that is, unrefined sugar is both cheaper and better. It seems ridiculous to buy expensive highly refined sugar when a cheaper article would suit equally well or even better. At the same time, it does not pay to use inferior sugar—for example, molasses sugar.

In Europe, beet sugar mainly is consumed, cane sugar being the exception, the British Isles alone consuming 2,000,000 tons per annum. European bee-keepers, however, have learned to prefer muscovado sugar, which is a cane sugar manfactured by a simple process. This sort of sugar is not as common as formerly. Porto Rico, until lately, made little else; but more up-to-date methods are now in vogue. Barbados still makes a considerable quantity. It is in the manufacture of muscovado sugar that table molasses is secured. Molasses secured by the more modern processes is unfit for human consumption, so that Porto Rican sugar has lost its name in Europe among bee-keepers, at least, and the Canadian wood-cutters no longer want its molasses, which causes Barbados to move up one place.

There is another sort of cane sugar, principally from Mexico, known as papelon, which is sometimes exported to the United States. It is an excellent food for bees. It is sometimes known as *clayed* sugar. It is often sold in Texas and New Mexico, and I presume some of the Texas bee-keepers can tell us all about it as a bee-food. Cane syrup is an excellent food for bees, but usually too dear for that purpose in the United States, where pancakes and flapjacks are so much in demand. In Florida and Georgia, why don't the makers of syrup use bees to convert the cane juice into syrup, instead of expensive machinery which endangers the product by burning it? It ought to be easy to try the experiment of making syrup by bees in Florida. I have no doubt the bees would make a superior product, and possibly cheaper.

Here let me note, bees are away ahead of the finest modern processes in evaporating sugar. Heat is the great enemy of the sugar-producer, and the bees make it without heat. It would not surprise me if the beautiful cane sugar of the future were made by the aid of bees, very largely so if not altogether. The process seems clear enough to me. The bees should convert the juice into syrup, then the syrup should be frozen to cause rapid crystallization. It should be added here, some far-seeing able men have condemned the whole modern process of sugar manufacture. It seems wasteful in the extreme to use a large amount of fuel to evaporate sugar juice when the bees could do it by the *cold process*. My calculation is, it would require from 300 to 500 colonies of bees to handle the juice of 100 acres of cane during a campaign of 100 days. Some of the Cuban readers of GLEANINGS are possibly able to test this matter practically. It should be remembered that the wax produced would compensate a bee-keeper for his labor in attending to the bees.

The average bee-keeper of the United States never gets a chance to try raw sugar, for the good reason that very little of it is imported. Raw sugar in the form of concrete is sometimes imported from Cuba, Venezuela, and Brazil. Most of the sugar imported is more or less refined before it reaches American ports, though the tariff

ONE VIEW OF AN INNER COURT BETWEEN SOME OF THE BUILDINGS OF THE A. I. ROOT CO.'S MANUFACTURING PLANT. SEE EDITORIAL.

discriminates heavily against refined sugar. The average American bee-keeper could get his sugar much cheaper than he does by calling for a sugar no higher than 16 Dutch standard; and, what is more to the point, this sugar is better than the coffee sugar he is in the habit of using at present. A word to the wise is sufficient. If he desires a sugar that may be used for the table, a 2 centrifugal sugar, which has large crystals of pale straw color, will do. The American housekeeper demands a hard dry white sugar, which the sugar trust, of course, furnishes at a large increase in price. Many bee-keepers are so situated in the West Indies as to be able to buy 50 lbs. of sugar for $1.00. In such situations successful bee-keeping is a foregone conclusion, particularly where one is looking out for wax.

I have seen bees fed in Kansas and Nebraska with sorghum syrup, and a similar syrup can be got from corn, teosinte, and other crops; but their use is so problematical it is necessary only to mention them and pass on to more practical things.

Date-palm sugar is occasionally imported into the United States. It is known to the trade as "jaggery." It is an excellent sugar for bee-feeding; and where one is in a position to get it cheap it ought to prove a desirable acquisition. The sap of the date-tree is handled in much the same way as the maple is; and, so far as I know, it is a richer juice. If date culture ever takes a hold in the United States I'd like to be near a date-palm grove. The date flower is a prodigious honey-producer, and, with the juice to feed the bees in time of need, a bee-keeper with a date-palm range ought to have a bonanza. Of course, if one taps the tree too much no fruit may be expected; but I understand a fair amount can be tapped without injury.

THE HONEY PALM.

In Chile there is a palm which is said to produce *honey*. Americans would denominate this as *syrup*, as it would hardly pass muster as honey. The honey-palm produces an immense amount of syrup, as well it might, as it looks to me like a mighty barrel, and it has none of the gracefulness of the palm. It stands as much cold as 20° of frost, and it may, therefore, be grown largely in the United States. There are quite a number of trees in California, but I doubt whether the owners know of its use. The Chileans have a wasteful plan of cutting the tree down to secure the sweet sap; but it can be tapped, as in the case of the date palm. I think the Chileans are not any too cleanly in their method of handling the juice. Any way, it would make nice bee-feed.

THE PALMYRA PALM.

This great oriental tree (*Borassus flabelliformis*) is a sugar-producer. The whole process is much akin to that of maple-sugar production. The result is "*jaggery*" sugar similar to date sugar. The juice must be rich, as it is said by some writers that 6 lbs. of juice will produce one of sugar. This palm would be a desirable acquisition in Cuba, as it has many uses besides this.

THE COCOANUT PALM.

It is not generally known that the cocoanut palm is a sugar-producer. As a matter of fact it is a good one, as may be readily found out by slashing one with a cutlass, causing the juice to flow, when the bees will eagerly catch the sap as it flows down the trunk. In some places sugar is made from the sap, which largely explains why bees revel in the cocoanut blossom.

THE CARNUABA, OR WAX PALM.

Sugar is also made from the sap of this great wax-producer, so that it may well be termed a serious rival to the honey-bee—the only rival known. I have no information as to the amount produced in Brazil. It is better known to American bee-keepers as a source of wax, and it produces an immense amount of the latter—millions of pounds—one port alone (Ceara) exporting as much as 2,000,000 lbs. per annum. Then the Brazilians use a vast amount of candles. I have every reason to believe the carnuaba is also a nectar-producer. Evidently this palm is destined to rank with the cocoanut and the date.

THE GOMUTI PALM.

What has been stated about the other palms will apply to this one (*Arenga saccharifera*) also.

It will be noted by the reader that this list contains nearly all the very famous palms of the world; and should it prove that the great Doum palm, of Africa, is also of value to bee-keepers, we could safely claim the heads of the whole list of palms, both as nectar-bearers and sugar-yielders. There is evidently a close connection between nectar-giving and sugary sap, hence I feel bold enough to lay down this law: That a sugar-producer is also a nectar-yielder or *vice versa*.

[Possibly it may be well for us to look into the question of whether we may not be able to import a cheap yet safe sugar for a winter food; but it is my impression that our commercial granulated sugar (whatever its source) would be cheaper than any thing we could import in quantities no larger than bee-keepers would require.—ED.]

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VALUABLE HONEY-PRODUCING PLANTS.

What the Department of Agriculture Expects to do in Spreading Information on the Subject of Continuous Bee Flora.

BY FRANK BENTON

(*Apicultural Investigator, United States Department of Agriculture*).

Under the heading of "Seed-growing for Bee-keepers," Mr. W. K. Morrison has, on p. 654 of GLEANINGS for July 1, 1904, made mention of a number of valuable plants, all of which, however, have been brought forward frequently in former years, both in American and foreign journals of apiculture as well as in treatises on bee-keeping.

As has been the case in Mr. Morrison's articles on foreign races of bees, where he has attempted to give authoritative information, there is much of interest in what he has to say, but yet not wholly unmixed with error. It is to correct some of these points that I will proceed to mention one or two of the plants which he advises bee-keepers to introduce.

SAINFOIN, OR ESPARCET (ONOBRYCHIS SATIVA).

Mr. Morrison states that sainfoin corresponds very closely to the alfalfa of the West. It is true that it is in the *Pulse* family, but the genus is an entirely different one from that of alfalfa, nor in the classification is it placed next to the genus of alfalfa. While a most excellent forage crop, and particularly nutritious as a fodder for milch cows and working horses and oxen, it is not as great a yielder as alfalfa, nor as lasting a perennial. The growth is not so luxuriant as alfalfa, and somewhat different conditions are necessary to its success. Besides the usual soil inoculation which most leguminous plants require, it must have for its best development a gravelly, limestone soil, or something like this. In the absence of lime in the soil, a heavy dressing of this material in some form is advisable—in fact, quite necessary—to insure a catch of the seed. It is just here that many have become discouraged in attempting to establish this plant. The limits of the chapter on bee-pasturage in my manual of apiculture ("The Honey-bee," Bulletin No. 1, n. s., Division of Entomology) did not permit my enlarging upon methods of cultivating the various crops, although on p. 61 in the first edition, as well as in the later editions, is to be found the following sentence: "Sainfoin (*Onobrychis sativa*) and serradella (*Ornithopus sativus*), both most excellent honey-plants, have not received the attention they merit, either north or south. Japan clover (*Lespedeza striata*) is grown profitably in the South, and even more might be expected from the introduction of sulla clover (*Hedysarum coronarium*) there, the latter a great honey-producer." Plate 4 in the same publication gives an illustration of sainfoin. Again, in an essay before the North American Bee-keepers' Association in St. Joseph, Mo., in 1894, I mentioned this plant in the following words, as reported on p. 357 of the *American Bee Journal* for June 10, 1897:

> Sainfoin, or esparcette (*Onobrychis sativa*), is a leguminous plant largely cultivated in Europe for forage and hay. It is raised to a limited extent in our Southern States, but it is worthy, I believe, of a much more extended cultivation, although it is not altogether hardy at the North. It has yielded a light crop as far north as Massachusetts, but it is liable to winter-kill considerably there. In the milder portions of the United States, and south of the Ohio, westward to the Pacific, it surely ought to succeed on light dry soils which contain lime. It is a most excellent honey-producer, and the honey is of fine quality—clear, thick, and pleasant-flavored.

The honey from sainfoin is most transparent, very thick, and of fine flavor. It blossoms in June, hence late enough for colonies to be populous, so that, wherever it can be made to grow, I believe it would be a most valuable addition to honey-producing crops; but I would warn those located in the far North not to expect too much of it, especially in those sections where the snowfall is not great, since the liability to winter-kill is greater with this plant than with alfalfa; nor should it be expected that the plant will exceed or equal alfalfa in any respect.

SULLA CLOVER (HEDYSARUM CORONARIUM).

It will be observed that the generic name of this plant is not the same as that of sainfoin. It is, however, a plant much more nearly related to sainfoin than the latter is to alfalfa. Mr. Morrison is quite in error in treating it under the head of sainfoin, and calling it "the Spanish kind known as 'sulla,'" for, as just indicated, it is not at present classified as a kind of sainfoin. The quotation from "The Honey-bee" given above indicates that it was my belief that sulla clover might be profitably grown in the South. I should, perhaps, have emphasized at that time the fact that this clover is restricted to the extreme south of Europe, principally to Italy, being quite sensitive to the cold of more northern countries, so that it can not be expected to succeed north of South Carolina; but surely if introduced into the Southern States, and grown under conditions similar to those which I have pointed out as being favorable to the growth of sainfoin, it would prove a great boon to stock-raisers and bee-keepers in that portion of our country. While something of a drouth-resister, it is by no means a semi-arid plant, but requires frequent rains or free irrigation. In those portions of Italy bordering on the Adriatic Sea, sulla clover is a very important crop—in fact, the chief dependence of the bee-keepers there, and this is the region where it is grown more than in any other country. It would, therefore, be somewhat of a misnomer to call it Spanish sainfoin.

In the course of our work during the fiscal year just begun we hope to secure a quantity of the seed of both of these plants for distribution among bee-keepers favorably situated to give the matter a test. It is not to be expected that a large quantity will be sent to any one person, but still enough to test whether the plant can be grown or not. This work was determined upon some time ago, and it is, therefore, gratifying to see that Mr. Morrison writes appreciatively of these plants.

ARTICHOKES.

I hardly share Mr. Morrison's opinion that artichokes would be any particular addition to our honey-producers. While they may yield some honey, and also pollen, I do not believe the quality of the former particularly good, nor that the yield would be abundant. Merely as an incidental source to keep bees busy, their value would be something, but, like sunflowers, unimportant as a real crop.

HORSE BEANS.

From these, as well as the various kinds of bush limas, better results may be expected than from such crops as artichokes. In some points in California large yields are asserted to come from the bean-fields. The honey is likewise of much better quality than that from plants of the sunflower order. The time of blossoming (midsummer) is likewise a period when many regions are deficient in honey-producing plants, so that certainly in our middle latitudes, and possibly, even, in the North, something might be expected from an extensive cultivation of beans.

RAPE (BRASSICA NAPUS).

While, very likely, Mr. Morrison is correct in the statement that rape is not as extensively planted as it ought to be, still, from his manner of writing, I judge that he knows little of its spread in recent years through our more northern States, New England, Oregon, Wisconsin, and Minnesota, where, as a crop for fattening sheep and hogs, it has become very popular. Two kinds are illustrated in my Manual, p. 60—the Dwarf Essex, or winter rape, which, cultivated as a biennial, blossoms in early spring, furnishing, besides honey, an abundant yield of early pollen, and the summer or bird rape, raised for the seed, which is used as bird seed, and likewise in the manufacture of oil. The former is the chief forage crop, and, when sown in late summer, furnishes an abundant autumn pasturage for fattening animals. Only those situated in a cool climate can expect the best results from rape as a forage crop.

TAGASASTE, OR "TREE ALFALFA," (CYTISUS PROLIFERUS).

This plant, belonging with the clovers in the *Pulse* family, has been tried in a very limited way in some parts of the country, but with indifferent success thus far. I am unable, at the present time, to say what the reason for this is, unless it be the trouble of getting the tenderer portions of the plant before the animals which are to be fed on it, without great injury to the plants themselves. It is a woody species of broom, the tips of whose branches only are suitable for stock. My own belief is that land not available for other purposes might perhaps be reseeded to tagasaste and left as a pasture-range for such animals as goats and sheep, regulating the number so as not to result in too great injury to the perennial plants themselves. In the Canary Islands, portions of Spain, Scotland, and Australia, this and other brooms furnish considerable pasturage to bees, so that certainly they are very hopeful plants for experimental purposes.

RED RASPBERRIES, HAZELNUTS, AND FILBERTS.

The importance of these has been mentioned in both of our Departmental publications, and at least the first of them (raspberries) has often been brought forward in foreign publications, although I am clearly of the same opinion as Mr. Morrison, that the importance of the red raspberry as a honey-producer has hardly been appreciated. Even a few acres would furnish a large apiary with pasturage for several weeks.

In conclusion I would state that I am firmly of the opinion that our future bee-keeping must take more into account the lack of continuous pasturage in any given locality, and intelligent effort must be directed to supplying this deficiency. It is, therefore, a source of satisfaction to me to be able to state that we intend here at the Department to enter upon a series of studies which will result in a complete mapping of the leading

UDO TOEPPERWEIN'S OFFICE AT SAN ANTONIO, TEXAS. SEE EDITORIAL.

honey-producing plants of the country, their times of blossoming, amount and quality of yield, with notes as to cultural methods, etc., so that in time we shall be able to know exactly what period is to be filled in, and what plants will serve the purpose for any given section or region of the country. We shall then be in a position to advise intending bee-keepers, or those already engaged in honey-production or other apiarian work in any part of the country, more intelligently than is possible at the present time; and we shall also be able to know better what foreign introductions are likely to be valuable in any part of the country.

U. S. Dept. of Agriculture,
Bureau of Entomology, Washington.

[The bee-keepers of the country need to note what the Department is about to do for them in a line of investigation that may mean very much. It is a source of great gratification that our government is taking the interest it is in our pursuit. No small share of credit is due Mr. Benton, its expert, for this recent awakening of interest. —ED.]

Heads of Grain
from different fields

STINGLESS BEES THAT WOULD PROVE A DESIRABLE ACQUISITION IN THIS COUNTRY.

Mr. Root:—You will be thinking I am very long in sending you the stingless bees; but it is almost useless to try an experiment of that kind from this country. When I get to Porto Rico I will make a trial shipment and see. These bees are very different from the Cuban sort; in fact, they would readily pass for Italians, the leather-colored kind. They give about two gallons at a "cutting," say twice a year. They are so tame that any number can be kept on the veranda, with people passing all the while. If very much worried they will bite, but not hard. I have been told of a kind that is "white," but this probably means yellow. These bees have been domesticated for ages, probably since long before Columbus. I wonder if the Carnegie trust would furnish me the money to follow this matter up. I feel absolutely certain that in California and Florida they will prove a desirable acquisition.

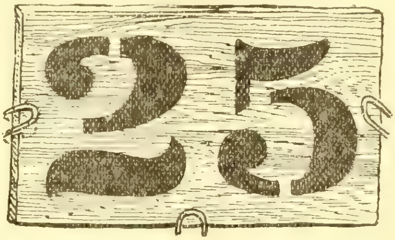
W. K. MORRISON.

Prince's Town, Trinidad, Sept. 10.

[Perhaps we could interest Uncle Sam.—ED.]

NUMBER-TAGS MADE OF PIECES OF SECTIONS.

Having read descriptions of the different numbering-tags in GLEANINGS I send a description and cut of tags which I am using with much satisfaction, and are certainly cheap enough for any one. The tags themselves are made of old broken sections, which are usually handy to every bee-keeper, and are made in my case (since my colonies as yet can be numbered with two figures) two inches in length by the width of the section. These numbers are made with a $1.00 stencil set, and are an almost indispensable article about the house and shop in labeling signs, bags, etc. The numbers are one inch in height.



As to the method of fastening on the hive, three small staples are used, slanting inward as in illustration. This leaves the tag free to slip in and out at pleasure. These staples can be purchased at the hardware store for about one cent an ounce.

If desired, these tags can be used as a hive-record, the same as the small slates, by making them square and then turning to the right, left, and upside down; and, to increase the combinations, drive three more staples in one corner of the hive, or even two corners, as the staples are so cheap.

ARTHUR H. MCGRAY.

Duvall, O., June 21.

HOW TO INTRODUCE TO A COLONY LONG QUEENLESS.

Please give me a method of introducing a queen to a colony which has been queenless for two or three weeks. I have not had much experience with bees.

SYLVIA MILLER.

Conway, Kan., Sept. 21.

[A colony that has been queenless some two or three weeks may or may not have laying workers. It may possibly be hopelessly queenless, in which case it would accept any queen that you give them without the formality of caging. First look through the hive very carefully and see if there are any evidences of laying workers—two or more eggs in a queen-cell, or several eggs in worker-cells, the laying more or less patchy comb, in some cells no eggs, in others one or more. It may be a little late to find any eggs, even if the laying workers are present. If there are no indications of such laying worker, let a virgin or laying queen run in among them. If they treat her kindly, show a hum of rejoicing, you will have no trouble. If the queen is balled it may be advisable to unite this colony with some other strong colony, or treat the hive as if it had laying workers.—ED.]

HOW TO MOVE A WHOLE APIARY LESS THAN A MILE.

I see so many questions asked in regard to moving bees that I should like to give my experience in that line. While the requirements are simple, yet some of them are frequently overlooked, and a failure is the result. In the last seven years I have moved five whole apiaries for myself and others, the distance in every case being under a mile. Two of the apiaries were my own, consisting of a hundred colonies, and were moved a little over fifty yards, in warm weather. In all this number, less than a gallon of bees went back to the old stands.

I think March is the best month in the year for moving an apiary. If you have work of this kind to do, put it off until winter if you can. If you are obliged to change your location in warm weather, leave the hive-entrances open while on the road. This may seem like a dangerous matter to one who has never tried it; but if the road isn't too rough it is perfectly safe. Take a small load, not over a dozen colonies. Let one man watch the hives with a lighted smoker, and another do the driving. You have no idea how easy it is to smother bees by shutting them up in warm weather until you have killed a few stands that way. If the temperature is below 40 degrees it will be safer and easier to shut the bees in.

Don't leave any thing but the bare ground at the old location. If the distance is under a mile, a large number of bees will usually go back to look around; but if they have marked the new home properly they will always return. If they are to be moved in warm weather it should be done very late in the afternoon, so they will have no chance to fly until the next day. If it is done in cool weather, leave them shut up until sundown. Put them on the new stands; leave them alone until some of them begin to fly, then go around and give every one a good smoking so they will know there is something doing. Then set up a board in front of each one so that a bee can not easily get out without bumping its head. I believe this is the most important part of the work, but it seems such a little thing that it is often neglected. It causes them to notice that there has been a change, and to mark the spot before leaving it. Many of them will go back to the old stand; and if there is a hive there, or any thing that looks like one, they will enter it and forget all about the new location. If there is none they seem to remember that there is one more chance, and that is the place they have just come from. C. F. BENDER.

Newman, Ill.

[We have had reports before, going to show that the entrances of the hives may be left open; but when the colonies are first loaded the bees should be smoked; for at the first "jounce" of the wagon some bees might offer attack.

Other reports, too, have shown that, when bees are moved, there should be no hives left at the old location. A beginner trying the plan here described should proceed with extreme caution.

I generally advise that, where bees are to be moved less than a mile, the moving be deferred till early in the spring, before the bees have had a chance to fly. If they have been in the cellar, all the better; for they can be put anywhere, and will stay where they are put.—ED.]

THE STING OF A WASP AS COMPARED WITH THAT OF A BEE.

I notice with interest Stenog's reference to what Mr. Wathelet, editor of *Le Rucher Belge*, says about the sting of the wasp as compared with that of the honey-bee. His is identical with a recent experience of my own, although the sting I received was from a yellow-jacket, smaller than the bee, and it lasted several days. While the part did not become swollen, there was a painful, itching sensation for more than a week; but had it been the sting of a bee, an entirely different sensation would have been produced, which would have disappeared in five to ten minutes. I found the wasp-nest, broke it up, and secured the queen, the remains of whose royal highness I have kept. I feel confident that the poison is quite different from that of the honey-bee, and more virulent. WM. M. WHITNEY.

Lake Geneva, Wis., Oct. 10.

A CHANGE WANTED; TIN PANS AND "POUNDED SWARMS."

If The A. I. Root Co. would manufacture every thing it is asked to in Heads of Grain, and incorporate in the A B C book all the advice found there, what a change we should find! I want the Root Co. to manufacture different sizes of tin pans to pound on when a swarm is coming off; also please run into the next edition of the A B C book the fact that this saves clipping queens, and that a pounded swarm can not abscond, never dies in winter, and caps its honey whiter. What can you supply foundation for with cells 4 inches across? L. E. KERR.

Germania, Ark., Oct. 8, 1904.

[You get the four-inch bees, and we will make the foundation to fit. That's easy. No doubt your "pounded swarms" will beat any thing on record.—ED.]

UNUSUAL RAINS IN CALIFORNIA.

We have been having unusually wet weather for this time of the year—the worst ever experienced here. In this city the rainfall already has been over six inches in a little over two weeks. Grass is quite green everywhere. Much damage has been done to hay, grain, beans, hops, and some kinds of fruits, especially grapes, the latter being one of our most important crops. Of course the bee-men will profit by the early rains, as fall and winter flowers will come out in redoubled numbers. The real winter, however, may be dry. W. A. PRYAL.

San Francisco, Cal., Oct. 11.

OUR HOMES,

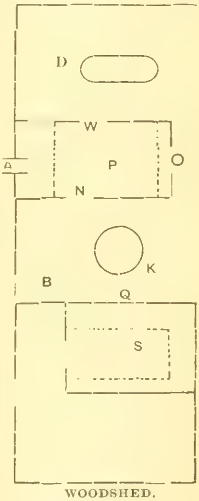
BY A. I. ROOT.

She looketh well to the ways of her household, and eateth not the bread of idleness.—PROV. 31:27.

I have oftentimes mentioned that, in our home, Mrs. Root does her own work without any help. When she and I are alone we get along very nicely; and when the children come home they, of course, know how to turn in and help, so Mrs. Root's cares and responsibilities are less (or ought to be) instead of greater, for the Root children know *how* to do things the way their mother taught them. Of course, when there is sickness (and this has happened only a few times, for which may the Lord be praised) we must have hired help. I do not wish to be uncharitable and severe on the average hired help in the home; but most of you know something about how difficult it is to get help that will really make things easier. Perhaps this is especially true when we get to be well along in life. It is very trying to old people to have somebody move their things around and get them out of place; to pick up utensils and drop them where last used. And, by the way, my experience is not only in the home, but in the factory or anywhere else there are only a few people in this world who will put things back where they find them after they are done using them. If fathers and mothers would only drill their children from early childhood to be careful about hindering the business of the world by handling and getting things out of place, what a blessing it would be to this world!

Yesterday a mother and two children started to go up in an elevator. One was a boy three years old, and the other was a baby in its cab. There was some little difficulty about getting the cab into the elevator, and the boy in charge left his post just an instant, and stepped out to help the mother. As soon as his back was turned, the little boy grabbed the lever and gave it a pull. The elevator started, and the baby was crushed to death right before the mother and the little brother. This boy had not been taught to keep his itching fingers off from things that did not belong to him. He did not know better than to meddle with dangerous machinery; and the saddest part of it is, this world is full of just such *meddling children*. I know of a few careful mothers who teach their children—boys and girls—so thoroughly and faithfully that they never touch things without permission. But I know of hundreds of other mothers whose children can hardly be trusted a second. Well, friends, the reason we have so much help that is more bother than it is worth, indoors and out, is because they have not been taught in early childhood to go through the world without making mischief and trouble at every step. I know there are a few hired girls who will go into any home, catch on to what is being done, and astonish people by letting them know they are jewels of flesh and blood in the shape of hired help; but when these same jewels are once found you can not get them, no matter what wages you offer, for they have permanent places, and their employers will not let them go. The above are the reasons why Mrs. Root as well as thousands like her prefer to do their own work. This being true, it behooves every loyal husband to do every thing in his power to save the steps of the dear little feet that minister to his wants.

I am now going to say something about house-building. Just 23 years ago Mrs. Root and I decided to build a brick house. We studied plans, talked with architects, and went over the ground most thoroughly—at least we thought so. After all our figuring, however, we made some bad blunders. The diagram below will explain one or two of them.



Let D represent the dining-room with the dining-table in the center. K represents the kitchen with the cooking-stove pretty nearly in the middle. Let P represent the pantry. This pantry has two doors; but for 21 years it has had only one. O represents the old door and N the new one. We had an expensive architect, and we discussed the matter of mistakes before we went to work at it. He said he would make good any mistake he made in his figures. One of his worst mistakes was in making the pantry, P, two feet longer than he intended. The dotted line near the letter O shows about where the end of the pantry should have been. By getting it two feet longer, the path from the stove into the pantry was made so much longer. At the opposite end of the pantry let A represent an outside window. Right under this window is a broad shelf. Under the shelf are drawers for spices, flour, meal, etc. A great deal of work was done on this shelf below the window A; but to get to that shelf one had to go around through the door at O in a roundabout way. At the letter W there is a pair of wide doors that open so as to pass things from the pantry over a broad shelf at W, to the dining-room table. Well, after putting up with this awkward arrangement, necessitating useless travel (shall I say hundreds of miles? Well, it was a *good many* miles in the 21 years, I assure you) Mrs. Root all at once said she wanted a carpenter to make a door at N. This we call the new door. Now, to go from the stove to the shelf at A she goes through N, in a straight line. After this door was cut through, she said it gave her a thrill of delight, not only daily and hourly, but every few minutes, to think of the ease with which she could go back and forth instead of taking that old roundabout path. No doubt hundreds of our readers are ready to suggest a still better arrangement of kitchen, pantry, and dining-room than we have now; but may be some of you good women are probably making roundabout routes just as Mrs. Root did. The new door cost only about $5.00, including having every thing finished and varnished just like the rest of the room. Mrs. R. tells me that pantries are being generally dispensed with nowadays. They just have shelves with doors to close them—cupboards you might call them.

Now for another short cut. Back of the stove is the woodshed. You may think it is old-fashioned when I tell you we still keep a Stewart cooking-stove, and burn wood. Of course, we use gasoline more or less in summer;* but in winter Mrs. R. is just old-fashioned enough to stick to good dry maple wood and the old-fashioned Stewart stove.

Inside of the woodshed near the kitchen stove there is a storeroom marked S. For 21 years this storeroom was inclosed and had shelves on three sides as shown by the dotted lines. This was put up in order to shut off from the open woodshed things to be stored that there was not room for in the pantry. Well, this storeroom was dark, crowded, and inconvenient. Just recently we took away the partition and door, and put light short doors over the shelves on the north and east wall, and she says she nevermore wants rooms when shelves covered with doors can be made to take their place. The old arrangement was really more expensive than the new.

In order that the floors of our house may be taken care of with less trouble, we are dispensing with carpets, and using rugs over the painted floor. One of our great trials with carpets has been the carpet-moth; and I think we have banished them entirely by filling the cracks of the floor with paint, and leaving the floor exposed all around the outside. Of course, the exposed portion is covered with floor-cement, and varnished. It is certainly a big move in the right direction to have houses so arranged that we can keep absolutely clear of insects and vermin. I do not suppose we shall ever be able to banish *dust* entirely here in this world, "where moth and rust doth corrupt, and where thieves break through and steal;" but by availing ourselves of all modern appliances we can do a great deal to save the labor of dusting, sweeping, and pounding carpets. And right here I wish to emphasize again the importance of drilling the children again and again in the matter of carefully cleaning their feet before they rush into the house. Have good porches, storm-doors in winter, a broom in readiness, husk mats on which to wipe the feet; rubbers to put on when it is muddy or sloppy, and a place to keep them when they are not needed, etc. A good husband will, of course, help in all this drilling—line upon line, precept upon precept; and as example goes beyond precept he will—that is, if he loves his wife—take pains to set an example before all the children. I know it seems sometimes that matters are so pressing that the wife will have to excuse rushing in, even if it is just a little muddy. Well, if your own or a neighbor's house is on fire I think you may be excused for not cleaning your feet, but, you may almost say, nothing short of that.

The following comes so near the matter we are discussing I give place to it here:

> *Friend Root:*—I see by the Oct. 1st number of GLEANINGS that you are fitting up an up-to-date bath-room. Can you not give us some information regarding it? I recollect that, years ago, you wrote something about having the stove-flue answer as ventilator. Kindly tell how, etc.; also the best way to dispose of sewage. I expect to put one in soon, and shall await your answer.
> Kerrmoor, Pa., Oct. 10. J. P. WATTS.

Friend W., the matter you refer to was very fully written up in GLEANINGS for May 1, 1901. At the time, we had a lot of leaflets struck off, entitled "Sanitary Drainage," and we are ready to mail them to any of our subscribers who have not seen them. Since then there may have been some improvements in bath-room appliances. Montgomery Ward & Co., and I presume other like dealers, give cuts and descriptions of the latest appliances. The best bath-tubs are made of enameled cast-iron. While this is not equal to porcelain, the expense of the latter is so great they are seldom seen except among the very wealthy. Enameled iron has been used largely for water-closets and wash-basins; but they are so difficult to keep clean that most people think it better to pay a little more and have the porcelain. I do not know of any reason why enamel or agate coating may not be made to equal porcelain; but so far as I know it has not yet been done. The water seems to have a corrosive action in time on all of the enamel ware that it does not have on porcelain. We have had three water-closets. The first one was made of iron, and painted. This looked untidy in a very short time. The next one was porcelain, costing, I think, about $15; but the working of it was very defective. It needed a great deal of attention to keep it clean. The latest one, costing $30, just put in, is called the "Hustler," and is made by E. W. Fisher & Co., Cleveland, O. It has a low-down reservoir; and when you lift the lever the contents of the bowl are thoroughly washed by a strong current of water clear out of sight; but just after the water and every thing else have gone entirely away, the bowl fills up, say, half full of clean water, so the apparatus, when it rests, presents to the user just a bowl of clean pure water and nothing else. The arrangements for avoiding all bad odors are the same as the one mentioned in the leaflet on sanitary drainage. Our bath-room contains, besides the bath-tub, water-closet, and basin, a hot-water radiator, so that it is always warm and comfortable in there, even in the night.

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* This woodshed was purposely left without any ceiling overhead, and our gasoline-stove is in this room. We tried to use it in the kitchen, but Mrs. Root declares that, whenever she uses gasoline, she must have a room sufficiently open to let the odor escape up through the roof. The gasoline-stove is also used more or less in the winter time, whenever there is frying meat or other cooking that might make it unpleasant or be liable to smoke, or make the ceiling and walls look untidy. I know of a good many people using gasoline in close rooms near the pantry and dining-table. But such an arrangement does not suit Mrs. Root, for the reasons given.

I forgot to say that there are a good many beautiful wash-bowls for hot and cold water, made of enamel, such as we have been talking about; but those of our neighbors who have used both, vehemently urged that we get a marble-top basin with porcelain bowl. This costs almost double the other kind, but they declare it is enough easier to keep clean and tidy to pay the difference.

I am well aware that there are some people who will say, "Oh! it is all very well for you rich folks to talk about your bath-rooms, etc., fitted up in city style, but—"

Now, my friends, let me say a word on this very subject. We have hundreds and thousands of well-to-do farmers who have all the latest appliances for caring for stock and handling farm crops, and this is all right. They have earned the right to them. *Some* of these well-to-do farmers, and I may say well-to-do mechanics also, are willing their wives should have modern and even elegant furniture for the homes; and where is there a woman who would not be made happy by having an up-to-date bath-room right out in the country? Not only is such an apartment a useful object-lesson to every member of the family, but I firmly believe thousands of lives might have been saved by installing these modern sanitary arrangements. When there is a neat tidy room in which to take a bath, the children will not need scolding to make them keep themselves clean; in fact, they will take pride in it besides enjoying it. They will be more likely to clean their feet when they come into the house, and they will take better care of their clothing. A good bath-room is one of the appliances of civilization, and I might also say of our Christianization; and what woman is there who will not feel a just pride in showing her guests, relatives or others, how conveniently she can minister to their wants in a civilized way? I do not mean, of course, that people should go to such an expense until they can afford it; but thousands who *can* afford it neglect this wonderful convenience as an adjunct to the home. In the summer time I greatly enjoy taking a good wash out at the cistern pump, and perhaps that is the least expensive way, all things considered; but in cold stormy weather I do greatly enjoy a warm bath-room where I can take a good wash, say after traveling on the cars or any other way for that matter. Cleanliness is *certainly* next to godliness; and order is *one* of heaven's first laws if not the very first.

NOTES OF TRAVEL
BY A. I. ROOT

MY APPLE STORY.

Now, this story about apples is going to touch on a good many things; and you may think, when you are part way through it, it is not an apple-story at all; but you will see where the apples come in. A little over a year ago I started to tell you about my trip to California, and return, and I am going back now to finish it. I left off where I was enjoying the health-giving waters of Agua Caliente hot springs. After I crossed the desert with my brother to his old home in Tempe my digestion began to get back in its old track. We carried along some large canteens filled with water from the springs. So long as that lasted I was well and happy; but when I began to drink water from other sources there was trouble. I tried distilled water. That was better than the miscellaneous waters I found in traveling, but it was not by any means equal to the water of the hot springs; and it seems to me as if this special water contained some chemical that was specially needed.

My first stop after leaving Tempe was at Bowie, on the Southern Pacific. This is a little station away off on the sandy desert, with great mountains looming up on every hand. At Bowie there are the largest oil-tanks, to contain the oil belonging to the Southern Pacific, that I ever saw in my life. I took down the dimensions, but I have lost them. You could not only put a good-sized meeting-house inside of one of those tanks, but they were large enough to contain a moderate-sized country village. The station agent told me how many thousand barrels each one held, but I have lost my figures. No wonder these western railroads can afford to oil their road-beds to keep the dust down, and to run their locomotives with oil instead of coal.

We had to wait nearly all the afternoon for the train to Safford, where W. D. Jefferson had invited me to call. I will not describe his ranch here, for I did it on page 27 of our issue for Jan. 1. It was terribly hot around Bowie station. While waiting for the train I looked longingly toward some of the clouds that seemed to threaten rain; and we could see rain coming down in different directions off in the mountains and down the valley toward Safford. The train was late, and the longing eyes of the weary passengers were often turned away across the desert. I was one of the first to catch sight of the smoke of the engine, and I think it was fully an hour after we got a glimpse of it before it reached the station. The delay was caused by heavy rains down in the valley. One woman echoed my sentiments when she said, "I wish it would rain here. I should like to see a big soaking rain out here in this hot dry sandy desert."

Another passenger replied, "Well, you may see a soaking rain to your sorrow before night."

We were finally all aboard, and the train started off. I had not had my after-dinner nap, and so after watching the showers over on the mountains from the open window I put my head on the window-sill and went to sleep. I must have been sleeping quite a spell when I was suddenly awakened by a lurching of the train and the frightened ejaculations of the passengers. I rubbed my eyes, and looked out of the open window where it had been only a dry sandy desert when I went to sleep, and imagine my surprise to see a roaring torrent of water cutting its way though the sand, making gullies in some of them a dozen feet deep or more, right close up to the tracks. In some places this gully had washed right under the ends of railroad-ties, and the commotion of the passengers was caused by all rushing to the opposite side of the car, for the track already sloped unpleasantly toward this chasm of rushing muddy water. The engine was just crawling along, and I suspect there were many prayers besides my own that we might get safely away from that dangerous torrent. At Solomonsville we found the station in a pond of water; in fact, the water was almost in to the depot buildings. Some passengers who wanted to take the train were coming from the town a quarter of a mile away through the water, in a carriage; but the driver could not see the road, and it was a question whether they would ever get to the station; but as the rain had ceased, and the water was rapidly running away, they finally reached us and the train started off. As we approached Safford there was less and less rain; and at Pima, my destination, there was but very little rain.

I told you in the issue referred to of my visit to friend Jefferson's home and apiary. The next morning we started out to see some of the fruit of Graham Valley. Right across the street from friend Jefferson's there was a prune-orchard of two or three acres. The trees were bending with beautiful luscious prunes; and when I asked why they did not gather them I was told the man who owned the orchard had moved away, and for several seasons the prices offered for prunes had been so low they were never picked. The people around town helped themselves to what they wanted, and the rest fell to the ground and rotted. Now, this is not a very pleasant story, especially in regard to the market price for fruit in this valley. I presume some enterprising man could have gathered the fruit and made a good thing of it, but it was simply neglected. Prunes keep so long without injury that they can hardly be called a perishable fruit. If I remember correctly I ate quite a few prunes before breakfast; then we started out on a tramp among the fruit-growers. There were peaches, apples, pears, and grapes at almost every stopping-place. Of course, I had to sample them. I remember thinking several times that I should probably get sick, but I thought I would take the risk for just once. May be it was only imagination, as friend Terry puts it. Besides, I was walking in the open air. Friend Jefferson can tell you how many miles we tramped that day, but it was almost from morning till night. I can not remember the names of the bee-keepers we visited; but I shall always remember one particular fruit-ranch belonging to Mr. T. O'Briant, a little out of town. Arizona has not been considered an apple-growing region. Around near Tempe and Phœnix I saw occasionally an apple-tree with a few apples, but they were regarded mostly as a curiosity. Well, this Mr. O'Briant got it into his head a good many years ago that a certain variety of apple, with proper treatment for that locality, could be made to do well, especially as the prices of apples were away up. I think I told you about an incident that happened on a former trip to Arizona. A little girl came into the grocery and laid down half a dollar for its value in apples. The proprietor weighed them on the scales as he would coffee and sugar. He poured the fifty cents' worth of apples into a paper bag, and the little girl carried them home without any trouble whatever. Apples there cost two or three cents apiece, and not very nice ones at that. Very likely they were *Ohio* apples. Well, now, Mr. O'Briant had had some experience with nurserymen in the East. He laid his plans for a forty-acre apple-orchard. He grew the trees himself, and did all the budding and grafting. He chose such varieties as had been grown successfully in that region; and it was my privilege to see the outcome for his work for twenty years or more past. There were about forty acres of the finest-looking apple-trees I ever saw. Under the influence of irrigation the trees grow every month in the year. Not only the limbs but the trunks of the trees are mostly smooth and clean. As there are no other apple-orchards within miles and miles of this one, or none of any account, there were no insect enemies. The trees were not only pictures of health, but almost every limb was bending with the most beautiful fruit it has ever been my fortune to look on. Just think of it! The codling-moth had never been known in that region. There was not a wormy apple, so far as I could find, on that whole forty acres. There was no blight nor scab, and there were no knotty, gnarly, and poorly formed apples. The bugs and insects had not caught on as yet to the new speculation. At first he ventured on only a few varieties he knew would succeed in that region. Then he commenced by grafting different kinds until he had almost every apple you could mention, especially in the way of winter apples.

As there had been considerable discussion in regard to the quality of the fruit under irrigation, they wanted me to test different varieties; and after I had tested the apples, there were peaches and pears. After I had decided for the tenth or eleventh time that I must not taste another bit of fruit, I was shown the Lincoln seedless pear. May be I have not got the name right, but that does not matter. I tested a great luscious pear, and decided in regard to the quality; and as it was a coreless I had to get clear down to the core to satisfy myself that it was no myth having a pear without a core. The simplest way seemed to be to keep on biting until I got to the core, and, sure enough, there was nothing there fit to be called a core. The pear might have been pared, and then canned or preserved, without cutting out any core at all. Then Mr. O'Briant had some new varieties of watermelons that I ought to sample while I was there. These new melons were probably extra fine. I had sampled so many things that I was not in shape to be judge. As I had been told friend O'Briant had recently sold his orchard, this creation of his skill and brain, I began to banter him a little about selling out just as he had made a great success. His good wife came in just at this time and suggested that her husband was getting old, and it was a great care and responsibility to get all those apples picked at just the right time, and have them sent to the best market. If I remember correctly the purchase price was $20,000, or $500 an acre for a piece of land in the middle of a great sandy desert where there is plenty of land to be bought for $5.00 an acre, perhaps, instead of a hundred times that much. Well, the good wife said something like this:

"Mr. Root, 'what doth it profit a man if he gain the whole world and lose his'—*health*, to say nothing of wearing him out *soul* and body by hard work?"

The good woman had got it right. It is a grand thing to make the sandy desert blossom as the rose, and to make two blades of grass grow where one grew before; but that does not half express it. It is a grander thing to make thousands of beautiful apples grow where not a single one *ever* grew before. But after having done this, I think friend O'Briant and his wife were wise in deciding to sell out and take things a little easier—not that friend O. should sit down in an easy-chair and read newspapers from morning till night, for that would be a still worse extreme. I would suggest, say, a "cabin in the woods." If I could have my way about it I would have some woods where it is a little cooler than that locality in Graham Co. But that is easy enough. The great mountain that towered over our heads through all our walks during that memorable day has pleasure-resorts clear up to its very peak where you can find frost, I think, almost any time of the year. I looked longingly toward the peak, but my arrangements would not enable me to stay long enough; but I promised myself the pleasure of ascending it at some other time.

Some of you dyspeptics may be curious to to know whether so much fruit really made me sick, especially when I did my very best to think it was the exact diet that God intended his children should use. Well, I *was* sick, now let me tell you, not only all the way home, but for two weeks afterward; and I believe it was mainly the result of eating to excess the most luscious fruits that this earth affords. May be if I had had Agua Caliente water to drink all day for several days afterward it would have been all right. I can not tell. I remember rejoicing to find a can of distilled water at one of the bee-keepers' ranches out in the country. Every village of any size in those torrid climates has an ice-plant; and where they produce ice they always have distilled water for sale. I think the price was only five or ten cents a gallon. Where the common water is alkaline they often take the distilled water around in wagons as they do milk here in the East.

I was too sick on my way home to enjoy any thing very much. A blizzard that came up suddenly while we were crossing the plains of Kansas gave me a touch of my malarial chills. But I wish to mention, before winding up this California trip, something about the wonderful Chicago drainage canal. Our railway, the Santa Fe, struck it perhaps fifty miles before we reached Chicago. I think I got my first glimpse of it early in the morning. A great portion of the way it is cut through the solid rock; and the heaps of blue slate piled up along each side of the canal were so high in some places it made me think of the Arizona mountains. I had read about this wonderful piece of engineering before; but one needs to ride along by it and see it to realize what stupendous undertakings are being and have been carried out in this day of progress.

SENDING YOUR HORSES TO SCHOOL, ETC.

Dear Mr. Root:—Don't you think you are too patient with the unreasonable attitude of Mr. Atkinson? There is no possible doubt that his horses can be made fearless in three or four hours. It is pure obstinacy, and a large number of *Farm Journal* subscribers are of the same opinion.
S. H. ROUS.

Philadelphia, Pa., Oct. 13.

The above was written on the margin of a leaf clipped from some magazine. This leaf gave pictures of the school described in the following extract:

AUTOMOBILE SCHOOL FOR HORSES.

While in many sections of the country people are trying to devise means to educate horses so that they will not become frightened at the sight of an automobile, away out in Bretton Woods, in the mountains of old New Hampshire, a few men have done more than to make suggestions.

They have established a real school, an automobile school for horses, and J. F. Hathaway, of West Somerville, was the auto-philanthropist who took upon himself the task of bringing horse and motor car into harmony.

The first lesson was to drive his car into the Mt. Washington stables, where there were more than 100 horses. At first it caused a commotion, some of the horses becoming so scared that they lay down in their stalls. After a few days most of the horses became used to the sight of the car, and were induced to eat sugar from the machine.

The results have fully compensated the teachers for their efforts, as there has not been the slightest accident to person, horse, or vehicle. This is the more astonishing in view of the great amount of driving and riding done at Bretton Woods. The record for eight days, from August 21 to 28 inclusive, shows that 496 horses had been let to guests at Bretton Woods. These horses have almost all been trained not to fear automobiles.

The letter may be a little severe on our good friend Atkinson; but inasmuch as we have had similar letters from quite a number of people I do not think it will do any harm to let him see some friendly criticism. This matter of a school for horses suggests another wonderful field for experiment and invention. When Ernest came home from the St. Louis exposition and said there was a horse there that knew his A B C's, could spell easy words, and "cipher," I remonstrated with him. I told him all such things were only shrewd tricks, and that it was not worth while to waste time in unraveling the trickery. But now the *Scientific American* comes out and declares that some of the foremost scientists of the world have been compelled to admit that this horse "Hans" has actually been taught by a process of careful schooling so he has quite a little education. I will make a little mention of his acquirements. He can not only do simple examples in mental arithmetic, but he has acquired a vocabulary of words that he can spell. The keeper turned his back and told his audience to test him by asking him some questions. Somebody asked him if he could spell *Nebuchadnezzar*. After studying on the question for a while with his trained horse sense, he shook his head. It was too big a job, and was beyond his schooling. The trainer interposed, and told the audience to give him the names of some of the large cities of the United States. When asked if he could spell *New York* he pricked up his ears and nodded in the affirmative, and then picked out the proper letters from the pigeonholes in plain sight, and spelled the words correctly. He did the same with San Francisco and New Orleans. His mental arithmetic was about like that of a child five or six years old who has had some little training. If the example was not too hard he could manage it all right. Well, if it had not been for radium, wireless telegraphy, and similar unfoldings, I might let the matter drop; but, dear friends of the human family, does not this suggest that, what "Hans" has been taught to do, other horses can be taught in like manner? Who knows but that, in a few days more, we shall be startled and appalled to know the possibilities that lie along the line of training that dear friend of mankind, that noble creation and gift of God?

Now, to come down suddenly to earth (from our mental "flying-machine" for instance), let me suggest that Bro. Atkinson and the host of farmers who have been following him should get some lumps of sugar and teach their horses to take it from their hands while they sit in an automobile. Instead of scaring the poor dumb brutes out of their senses by the spectacle of a buggy that goes without a horse to pull it, shall we not teach them, as fast as possible, that everybody who rides in an automobile is very likely to have some lumps of sugar in his pocket that he will be glad to give to every horse that looks at him inquiringly? Why, bless you, this is no fiction. We once had a horse on the vegetable-wagon that had been bothered by mischievous boys until he showed his teeth, and snapped at everybody who passed under his nose, myself not excepted. I said at first I would whip it out of him; but on further consideration I filled my pockets with sweet apples until he learned to expect an apple every time I came in sight. It was laughable to see him, each time his bad disposition was aroused, with his ears laid back on his neck, change so suddenly to a bright and intelligent-looking horse with his ears pricked forward, when it took nothing but a sweet apple to win his big clumsy self, heart and soul. Yes, I believe a horse has a heart, and that he will remember his friends just as he does every thing else; and I do not know but the dear fellow has some sort of soul. Who knows what has been slumbering, only awaiting development, in the horse's mind during the centuries that are past? May God help us to recognize the wonderful possibilities with these animals that have been right with us so long, and yet we did not know it.

After the above was in type I noticed in the *Farm Journal* for November the editor has made an extract of where I spoke of passing a buggy containing a baby, its mother, and grandmother (see page 854, Sept. 1). The editor presents the matter very kindly, but he has drawn some wrong deductions. In a little picture that is very cleverly drawn, he represents myself as riding the automobile as I passed the women. Now, perhaps I was careless in describing the event; but the truth of the matter is, I ran the machine up to the side of the road, and walked quite a distance to meet the women. I took the horse by the bit, led him close to the machine, and even went past before I could induce them to get in. The *Farm Journal* says further in regard to it:

> Mr. Root's effort to soothe the frightened grandmother was well meant, but not at all effectual; and he does not seem to appreciate the great wrong done that poor old lady, nor seem to care if this shall be the last time she will ever take the risk of another ride.

The above statement is not quite in accordance with the facts. I did succeed in soothing the grandmother, and mother as well; and they were profuse in their apologies for having made such a fuss when there was really nothing to be alarmed at. I was exceedingly pained to know that I had been the means of giving them such a fright, but I do not think either of them felt at all like saying they would not go out with a buggy any more. Now, is it not possible that these two women had been reading what the *Farm Journal* has said for some months past (you know it goes anywhere)? and is it not possible the editor of that journal is as much responsible, or more so, for the fright of those two women than I was myself? One thing they said I had almost forgotten. It was to the effect that my machine made so little noise, comparatively, it was not likely to frighten horses; and that if other drivers would take the same pains I did, there certainly would be no reason for such apprehension.

In conclusion, why is it that neither the *Farm Journal* nor T. B. Terry has as yet touched on the matter of the importance of educating horses at large *as speedily* as possible, just as the horses *are* educated all through and around the locality where autos are a daily sight?

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WANTED—To exchange English chainless bicycle, in good repair, cyclometer, lamp, bell, all tools, Dunlap double-tube tires, for Cowan two-frame extractor, and shallow extracting supers. Full description. Address L. S. RAWLINSON, Muse, Augusta Co., Va.

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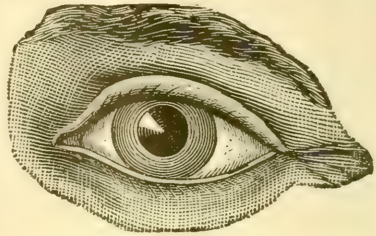

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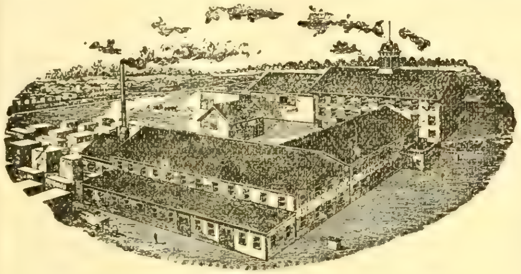

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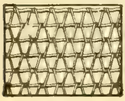

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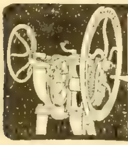

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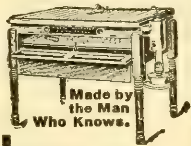
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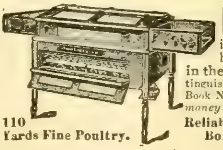

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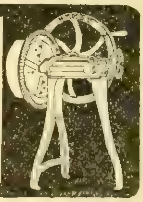

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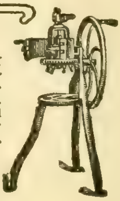

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provides the cheapest and most productive poultry food; doubles egg yield; increases fertility; makes vigorous chicks. **Mann's automatic, self-governing device,** adapts the feed of machine to operator's strength. Anyone can turn it. Cuts all kinds of bone and adhering meat and gristle. Wastes nothing. **Sold on Ten Days' Free Trial.** No money asked for until you prove our guaranty that it cuts easier and faster than any other type. Isn't this better for you than to pay cash in advance for a machine you never tried? Catalogue free.
F. W. MANN CO., Box 37, MILFORD, MASS.

SPECIAL NOTICE
Special Notices
By Our Business Manager

EARLY-ORDER DISCOUNT.

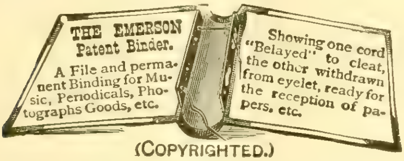
The discount for cash orders during November for next season's use is 5 per cent. Quite a good many forehanded people are availing themselves of the discount, and ordering their supplies for the coming season. It is a wise policy, as you not only save the discount but you have the goods on hand to work with through the leisure winter months, and get ready for use when the season arrives in the spring.

WEED FOUNDATION MACHINERY FOR TEXAS.

We are installing an outfit of Weed machinery in San Antonio, Texas, in charge of Udo Toepperwein, the manager of our branch office at that point. This will make it possible for bee-keepers of the Southwest to exchange their wax for Weed-process foundation in large or small lots to the best advantage. It will be several weeks yet before the outfit is set up and running, but we trust that it will be in operation some time in December in good time for next season's requirements.

GLEANINGS BINDERS.

Our subscribers have repeatedly asked us for a good substantial binder for GLEANINGS. We are now prepared to supply the Emerson Binder, the best on the market, we believe, made to hold one year's GLEANINGS.


THE EMERSON Patent Binder.
A File and permanent Binding for Music, Periodicals, Photographs Goods, etc.
Showing one cord "Belayed" to cleat, the other withdrawn from eyelet, ready for the reception of papers, etc.

(COPYRIGHTED.)

We have two styles, each lettered "Gleanings in Bee Culture." Style C is an art canvas cover of red. Style D is an elegant half-leather. Prices as follows:

Style C binder, each	50 cts.	Postage extra,	10 cts.
Style D " "	75 cts.	" "	15 cts.

AIR-CUSHION RUBBER STAMPS.

We are prepared to furnish our molding and block stamps with air-cushions at a slight additional cost. This "air-cushion" is a specially made strip of rubber fastened between the handle of stamp and rubber plate. It makes a stamp practically perfect. If struck carelessly or quickly the impression is not spoiled or blurred, as the pressure is equalized, and there is no rebound. The wear and noise of stamping is greatly reduced. It insures a good print on any surface, either uneven or yielding. Price of molding stamps:

1 line not over 3 inches long	15c
2 line not over 3 inches long	25c

Each additional line, 5c extra.

For a block stamp, add 10c extra to above prices; if border is wanted, add 10c more.

FOR AIR-CUSHION, add 10c extra to price of molding stamp, or 15c extra to block.

Write for our rubber-stamp catalog giving prices of different styles and samples.

A lot of people read the advertising of Paroid roofing in our columns, and are much impressed, but they are apt to conclude that any roofing that comes in a roll is much the same as Paroid. This is entirely unfair. If you like what the Paroid people have to say, be sure you find out all about Paroid before you buy.

DOING FARM WORK BY ELECTRICITY.

Electricity has at last been applied successfully to agriculture, says the November *World's Work.* Already, on farms in Southern France, horses are replaced by motors. The farmers of the old province of Aisne have discarded their horses, and are thrashing their grain, grinding their flour, cutting roots, and pumping water by electricity. The owners of large farms have their own motors. The smaller proprietors club together to buy a motor, which is moved from farm to farm as each farmer needs it.

The power to run the motors is supplied from a central station, over high-tension lines, to sixteen sub-stations, which distribute it at the proper pressure to the adjacent farms.

Other experiments have been made in Germany. The results show that it is cheaper for a small farmer to pay his share of the cost of a motor, which he may use when he wishes, than to keep a horse for farm work. And it has been found cheaper for the larger farmer to own motors, which do his work quickly and with little care, than to maintain a large stable continuously.

An even more remarkable application of electricity is the use of an electric current to make plants grow. Experiments have been carried on at the Hatch Experiment Station, Amherst, Mass., which show that electricity has very marked effects on the growth of both seeds and plants. Seeds of several kinds of vegetables were planted in insulated boxes, and were subjected to electrical currents of various kinds and intensities. The results showed that an alternating current of rather low intensity was the most effective stimulant, increasing the growth in some cases as much as 37 per cent.

Convention Notice.

The Illinois State Bee-keepers' Association will hold its 14th annual session in Springfield, Nov. 15, 16. Excursion rates will be given on all roads in the State. We shall have a good program. J. A. STONE,
Springfield, Ill. *Secretary.*

The Connecticut Bee-keepers' Association will hold its fall meeting in the capitol at Hartford, room 50, November 10, at 10:30 A.M. The question-box will be open to all. All bee-keepers are invited to attend with their friends, bringing questions they would like discussed. Bring a sample of this year's honey crop or some apiarian fixture you would like to show. E. E. SMITH,
Watertown, Ct. *Secretary.*

The Pennsylvania State Bee-keepers' Association will hold its fall convention in Harrisburg on Tuesday and Wednesday, Dec. 6 and 7, 1904. An excellent program has been arranged. Many subjects of vital interest will be ably presented. General Manager N. E. France, of N. B. K. A., will be present as well as other prominent bee-keepers. Every bee-keeper in Pennsylvania should interest himself in this meeting.

D. L. WOODS, Sec'y, Muncy, Pa.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8.00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. LAWS, Beeville, Texas.

QUEENS! THE BEST can always be had at 75c each for untested; $4 25 for six; $8 00 per dozen. Tested, $1 50 each. Best breeders $5 each. Safe arrival and satisfaction guaranteed. **The JENNIE ATCHLEY CO., Box 18, Beeville, Bee Co., Tex.**

SHIPPING CASES AND CRATES.

24-lb. no-drip cases, 2-inch glass, $13.00 per 100; 12-lb., $8.00. Crates to hold 8 24-lb. cases, 30c. No. 1 sections, $4.00; No. 2, $3.50. Foundation, smokers, bee-hives, wholesale and retail. Send for list.

W. D. Soper, Route 3, Jackson, Mich.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

We will allow a cash discount of 5 per cent on orders sent in during Nov.

Send for Our FREE New Illustrated Catalog and Price List.

Dittmer's Foundation
RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

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If You Want a Smoker

That goes without Puffing—Clean, Durable, and Handy—

Oldest, newest, and embracing all the improvements and inventions made in smokers, send card for circular to

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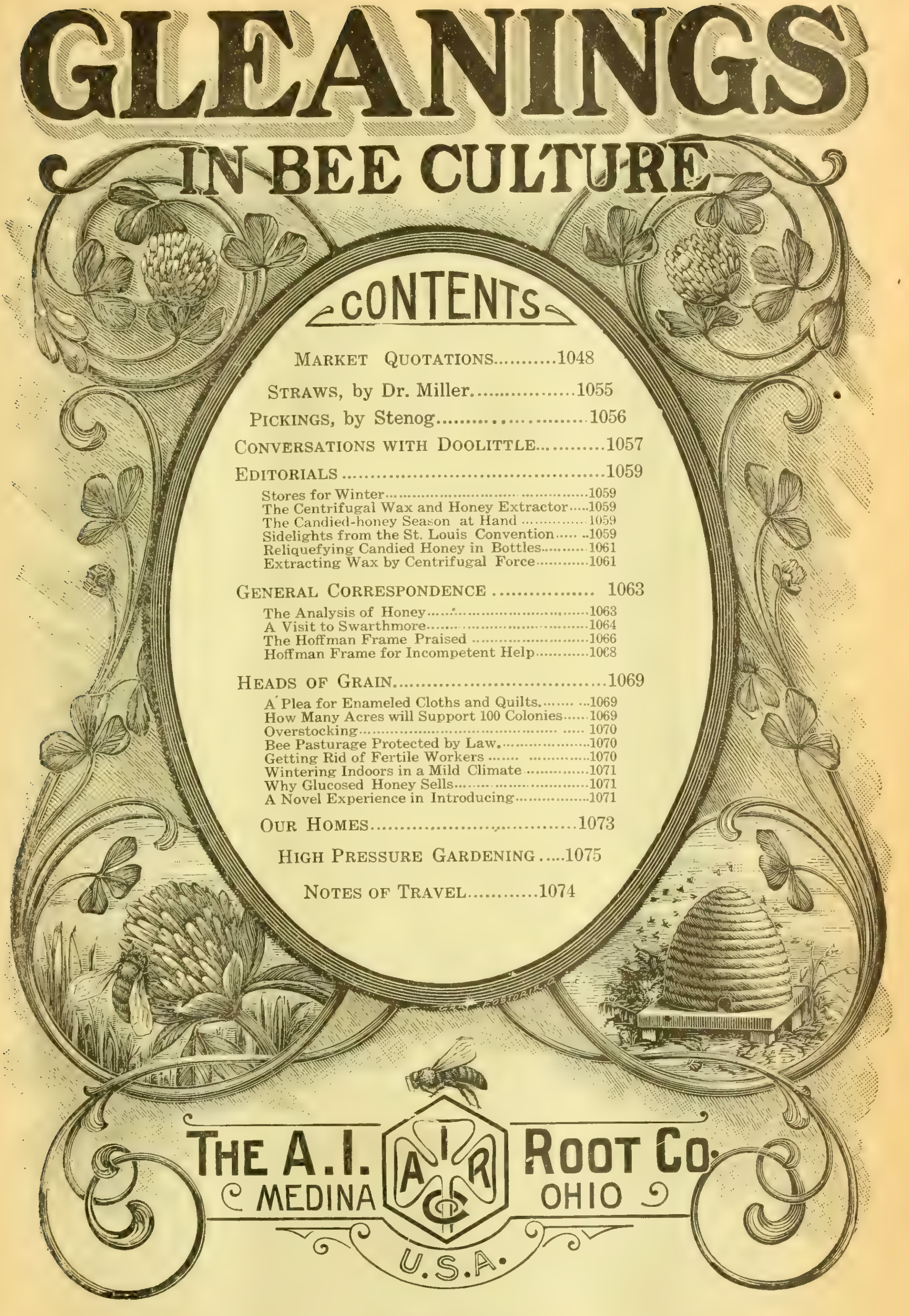
FARWELL, MICH.

Volume XXXII. NOVEMBER 15, 1904. Number 22

GLEANINGS IN BEE CULTURE



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MEDINA OHIO
U.S.A.

Western Edition.

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TEXAS BEE-KEEPERS!

Do You Want Satisfaction?

Then use the best hives, the best sections, the best of everything, by using Root's Goods. Don't be misled.

Weed New Process Foundation.

We are now installing a complete outfit of the latest Weed Comb-foundation Machinery at this branch. Save time and freight by sending your orders here. Beeswax wanted.

Early-order Discount.

Don't forget our 5 per cent early-order discount for November cash orders; 4 per cent off in December; 3 per cent in January.

Change of Location.

We are now located at 1322 South Flores St., where we shall be pleased to meet any and all bee keepers when in the city. Call and examine our goods, whether you wish to buy or not.

THE A. I. ROOT CO.,

1322 South Flores St.,

SAN ANTONIO, TEXAS.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Let me sell you the **Best Goods Made**; you will be pleased on receipt of them, and save money by ordering from me. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: ::

Discounts

Allowed on early orders; take advantage by ordering now. Orders received during

November,	**5**	**per cent**	**Off Catalog Prices.**
December,	**4**	"	
January,	**3**	"	
February,	**2**	"	

* * *

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—Shipments have been quite heavy in the last two weeks; prices are a little weaker in consequence, although fancy honey maintains a good price. We find the shortage is always in the fancy goods, and the off goods are what overstocks the market. We quote: Fancy, 16@17; No. 1, 14; amber and No. 2, 12@13. Extracted, white, 8; amber, 6@7. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Nov. 10. 10 Vine St., Philadelphia, Pa.

ST. LOUIS.—The receipts of comb honey have been rather large of late, and with considerable stock on the market prices eased off somewhat. We quote as follows: Fancy white comb honey, 13½@14; A No. 1, 12½@13; No. 1, 10@11. The latter grade as well as Nos. 2 and 3 are not in demand, and prices nominal. Choice extracted white clover and Spanish needle in 5-gallon cans, 6½@7. Dark and southern honey, 5½@6. Southern, in barrels, 5@5½. Beeswax, 28½ per lb.

R. HARTMANN & Co.,
Nov. 7. 14 So. Second St., St. Louis, Mo.

CHICAGO.—There is not demand sufficient to take the receipts; hence are accumulating. Especially is this true of western honey, and off grades of the surrounding territory. Fancy white-clover comb brings 14; other No. 1 to fancy white, 12½@13; off grades, 1c to 2c less; amber, 10@12; extracted white, 6½@7½; amber, 6@7. All of the foregoing is governed by quality, flavor, and kind of package. Beeswax, 28@30 per lb.

R. A. BURNETT & Co.,
Nov. 7. 199 South Water St., Chicago, Ill.

CINCINNATI.—Comb honey is now coming in more freely, and prices if any thing have moderated a little. The sales made and prices obtained were: No. 1 fancy water white, 13@15; No. 2, 12@14. Extracted is sold as follows: white clover, in barrels, 6½; in cans, 7½@8; amber, in barrels, 5¼@5½; in cans, 6@6½. Beeswax, 27.

C. H. W. WEBER,
Nov. 7. 2146-8 Central Ave., Cincinnati, O.

NEW YORK.—Receipts are now plentiful of nearly all grades. The demand is not quite as brisk as last year, and only fair. We quote fancy white at 14@15; No. 1 white at 13; lower grades at from 10 to 12; buckwheat at from 9 to 11, according to quality. Extracted honey—there is a fairly good demand at unchanged prices. Beeswax—dull, at from 28 to 29.

HILDRETH & SEGELKEN,
Nov. 7. 265-7 Greenwich St., New York.

ALBANY.—Honey market easier to buy than sell at quotations. Concession has to be made on any quantity sales. We are holding at 15 for white; 14, mixed; 13 for Nos. 1 and 2. Buckwheat, 11@12. Extracted slow; white, 6½; mixed, 6; buckwheat, 6. Beeswax, 28@30.

MACDOUGAL & Co.,
Nov. 8. 326 Broadway, Albany, N. Y.

SCHENECTADY.—Receipts of comb honey are large, and producers are forcing sales to some extent, which has caused a weakening of prices. We quote fancy paper cartons, 15; A No. 1, 14; fair to good, 12@13; buckwheat, 11@12. Price of extracted unchanged.

CHAS. MCCULLOCH,
Nov. 8. Schenectady, N. Y.

KANSAS CITY.—The demand for honey continues good, but prices are no better, fancy white comb in 24-section cases selling at $2.75 per case; other grades ranging down to $2.25. Extracted very slow sale at 6½@7. Beeswax in good demand at 30c.

C. C. CLEMONS & Co.,
Nov. 7. Kansas City, Mo.

BUFFALO.—The demand is very good for white comb honey. Dark is selling slow. Very light stock in the market. Fancy white comb, 14@15; A No. 1, 13½@14; No. 1, 13@14; No. 2, 11@12; No. 3, 10@11; No. 1 dark, 10@11; No. 2 dark, 9@10; white extracted, 7@7½; amber extracted, 6½@7; dark extracted, 5½@6. Beeswax, 32@35.

W. C. TOWNSEND,
Nov. 12. Buffalo, N. Y.

TORONTO.—No change in prices of honey. Sales are not very brisk at present.

E. GRAINGER & Co.,
Nov. 8. Toronto, Can.

FOR SALE.—A few more cases of fine dead-ripe extracted honey, both white and amber, in 5-gal. square cans. Prices on application. Free samples. Address

O. H. TOWNSEND, Otsego, Mich.

FOR SALE.—Extra-quality clover and basswood extracted honey, 60-lb. cans, 7c. Friction-top pails of 10¼ lbs. net, 7½c. Sample free. Reference, A. I. Root Co., Syracuse, N. Y. F. W. LESSER, Sta. A, Syracuse, N. Y.

FOR SALE.—Light extracted honey, in cans and barrels, 7½ to 8½ cts. a pound. Sample, 10 cts. Beeswax wanted.

I. J. STRINGHAM,
105 Park Place New York.

FOR SALE.—A few thousand pounds of light amber comb honey at 12c. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, O.

WANTED
FANCY COMB HONEY
In No-drip Shipping Cases.
Also AMBER EXTRACTED
In Barrels or Cans.
Quote your lowest price delivered here. WE REMIT PROMPTLY.
THE FRED W. MUTH CO.,
No. 51 WALNUT ST., CINCINNATI, OHIO.

For Sale. 10,000 pounds of fine white comb honey.
F. T. Vasey, Menomonie, Wis.

For Sale—10,000 pounds choice extracted honey. White clover and amber fall. In barrels, 7c; 60-lb. cans, 7½c. Dadant & Sons, Hamilton, Ill.

For Sale.—10,000 lbs. of fancy extracted honey, clover and basswood. Also 2000 lbs. of the same quality but slightly off color.
Gustave Gross,
Lake Mills, Wis.

For Sale.—Clover and basswood extracted honey in 60-lb. cans. One can, 8 cts.; two or more, 7½ cts. Do not send local checks.
Mrs. C. L. Parker,
Sta. A, Syracuse, N. Y.

For Sale.—Extracted honey. No. 1, from alfalfa, 7½ cts.; No. 2 alfalfa, partly from cantaloupe, 6½ cts. Home and bees for sale. Write me.
D. S. Jenkins, Las Animas, Colo.

For Sale.—Finest quality, extracted white-clover honey at 7½c. per pound, in cases of one new 58-lb. can. Sample, 8c.
R. & E. C. Porter,
Lewistown, Ill.

For Sale.—A few 160-pound kegs of fine white extracted honey, well ripened on the hive. Sample free.
Earl Rulison, Route 1, Esperance, N. Y.

For Sale.—Fine extracted honey from alfalfa with trace of alsike, white, and red clovers, 6½c per pound, 60-pound cans. E. F. Atwater, Meridian, Ida.

For Sale.—Extracted honey, clover or basswood, in kegs or cans. Write for price. Sample, 8 cts.
C. B. Howard, Romulus, N. Y.

For Sale.—8000 lbs. of clover extracted. Combs all capped before extracting, and no brood-combs handled. In 60-lb. cans, 8c. Return if not satisfactory. 200 cases of comb $3 per shipper's order.
John C. Stewart, 20 years a bee-man, Hopkins, Mo.

Wanted.—New crop white comb honey. Describe what you have, and state price.
Evans & Turner, Columbus, O.

Wanted.—Comb and extracted honey on commission. Boston pays good prices for a fancy article.
F. H. Farmer, 182 Friend St., Boston Mass.

Wanted—Comb and extracted honey. State price, kind, and quantity.
R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

Wanted.—Comb and extracted honey. State kind, quantity, and how put up, and lowest cash price.
Chas. Koeppen, Fredericksburg, Va.

Wanted.—Well-ripened extracted honey to sell again. Give low price and full particulars in first letter.
D. E. Lhommedieu, Colo, Story Co., Iowa.

Wanted.—Clover extracted honey in cans or barrels; send sample, and state quantity, whether in barrels or cans, and price delivered at Chicago or Medina.
The A. I. Root Co., Medina. O.

Wanted.—Buckwheat honey in kegs or cans. Send sample, and state price delivered at Medina, New York, Chicago, or Philadelphia. Mention quantity you can furnish. The A. I. Root Co., Medina, O.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year Write us if you have any to dispose of.
Hildreth & Segelken,
265-267 Greenwich St., New York.

Wanted—Beeswax. We are paying 25c cash or 28 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York City, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
The A. I. Root Company, Medina, Ohio.

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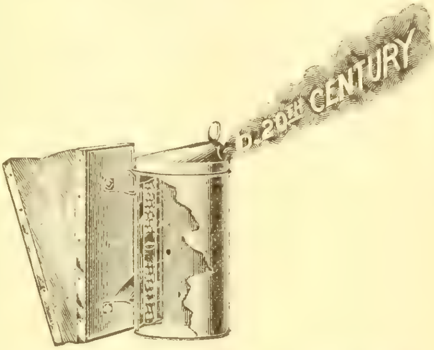
...$1.00 Smoker...

Guaranteed to suit or the dollar back.



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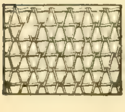

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COILED SPRING FENCE CO.,
Box 101 Winchester, Indiana.

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[Established in 1873.]
Devoted to Bees, Honey, and Home Interests.
Published Semi-monthly by
The A. I. Root Co., Medina, Ohio.

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E. R. ROOT, Editor of Apicultural Dep't.
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A. L. BOYDEN, Sec.
F. J. ROOT, Eastern Advertising Representative,
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To promote and protect the interests of its members.
To prevent the adulteration of honey

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Send dues to the Treasurer

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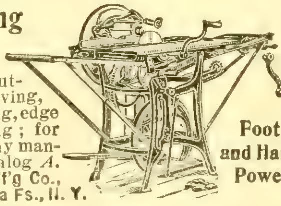

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Stray Straws

By Dr. C. C. Miller.

YOU'RE RIGHT, Mr. Editor, p. 1011, *at first* I used saltpetered rotten wood, but had forgotten it—it seems you hadn't. Rotten wood is, perhaps, better than rags; but rags are easier to find in our family.

APPLICATION has been made for a patent on the Columbus foundation (with metal base) on this side of the Atlantic, says "Jung-Klaus" in *Deutsche Imker*. Tell Herr Schulz, friend Jung-Klaus, that the thing is old in this country, and hardly patentable.

PLEASE EXPLAIN, friend Green, more about that use of comb honey for candy, p. 1013. If the honey is heated—and generally no candy is made without heating—wouldn't the wax separate, leaving the honey the same as extracted? Do you mean that the honey and wax are mashed up together some way, without heating?

SOME of our foreign brethren seem to think that Americans have comparatively little to do with extracted honey. I wonder how that is. I don't really know whether more comb or extracted is produced. Perhaps you can tell us something about it, Mr. Editor; at least, you can tell us something about the sale of extractors.

W. GUENTHER says in *Imker aus Boehmen* the best time to move bees a short distance is not in early spring, but between Sept. 15 and Oct. 20. [Between Sept. 15 and Oct. 20! I should say that every thing depends upon the locality to which this is intended to apply. If it comes quite cold so that the bees do not fly much between the days named, then the bees may be moved. In our locality the dates would have to be from, say, Nov. 1 on.—ED.]

THE price of the new foundation in Germany is 6 pfennigs for 100 square centimeters. If I figure correctly, that's about 13½ cents a square foot. At 55 cents a pound, medium brood foundation costs about 8 cents a square foot. That makes the new foundation about 70 per cent more expensive. In reality the difference wouldn't be that much, for I think prices are higher in Germany than here.

QUITE AMUSING it is sometimes to see the understanding—or misunderstanding—that some of our good friends across the water have of things originating this side. In *Bienen-Vater*, p. 261, without a word of comment from its able editor, Alois Alfonsus, appears an article by K. Muehlstein, who occupies more than a page to prove that a long-tongued queen must be a bad queen, because a queen with a tongue abnormally developed must necessarily have egg-producing organs that are not normally developed! Freund Alfonsus, nicht die Koniginnen, sondern die Arbeitsbienen, sind langruesselig.

M. MERCIER says in *Progres Apicole* that if from a colony the queen and all eggs and unsealed brood be removed at the same time, such colony will never develop laying workers. From this he concludes that laying workers are produced in this way: When a queen is removed and all brood left, the brood to be fed becomes less and less at a rapid rate, and the nurses have an oversupply of pap; so the last part of the brood gets an extra dose, enough to make laying workers of them. I wonder if his premises are correct. Possibly W. H. Laws can tell us; for if M. Mercier is correct, then there should never be laying workers in baby nuclei without brood.

IN SPITE of what I have said, under the conditions that you name, Mr. Editor, page 1013, having to make a choice for fall feeding between sugar, and honey that I didn't feel safe to use without boiling, I'd take the sugar. Too ticklish a job to cook the honey enough to be sure of killing all spores without heating too much for good wintering. [I should really like to know, though, whether honey does contain certain food elements that the bees really need, not found in the sugar syrup. During the process of storing in the combs, according to the chemists, the bees invert this sugar syrup so that it is just as digestible as any honey; and in saying this I do not wish to carry the impression that the inverted-sugar syrup is also honey. See the article by W. A. Selser, page 1063 of this issue.—Ed.]

Springs for brood-frames! I must have been napping, for I don't remember seeing anything about them before the mention by J. A. Green, p. 1014. Why shouldn't they be a good thing, squeezing the frames up together while you sleep? "They must be made properly, though." What do you mean? How are they properly made? Don't hide your light, Jimmy. [I do not remember to have seen any suggestion of springs for the brood-nest before Mr. Green mentioned them. It is my impression that he put it out as an original suggestion of his own. The springs may be all right, but I am of the opinion I should not care to bother with them. I once talked with R. L. Taylor, who, as you know, is a user of the Heddon hive. While the original hive was provided with thumbscrews Mr. Taylor considered their use unnecessary and expensive. If I remember correctly he gave it as his opinion that the closed-end frames without the pressure would separate just as readily as those squeezed tightly together.—Ed.]

P. Neumann, in *Leipziger Bztg.*, quotes a Straw from p. 740, and thinks I don't consider the different conditions in Europe and here; for instance, that we have to do largely with comb honey and they with extracted. My good German friend, don't for a minute think that I depreciate the advanced position of bee-keeping across the water. Especially when it comes to theory—upon which all solid practice must be built—I take off my hat to the patient and careful investigators in the fatherland. The only point I was making was that, whereas formerly nothing in the foreign journals appeared as to bee-keeping on this side, now it is the common thing. That may be because our foreign brethren have become more wideawake to pick up good things, as you say, wherever found; or it may be that more good things are to be picked up here than formerly—probably both. At any rate, many of the foreign journals now have a bright eye on the lookout for good things to be picked up, of which you are yourself a good example. And it's a good thing that we're thus coming closer together all the time. Grusz—or, if you'll let me put it in Western U. S., shake.

Thanks, Mr. Editor, for the very clear and explicit instructions for accustoming a horse to an automobile, p. 1012. This is really a very important matter; and if those instructions had been known and followed it might have saved two or three serious accidents here. Just the day before Gleanings came, with the aid of my good friend Bert Piper I gave a lesson to one of my horses. At his suggestion I led the horse up to see and smell of the machine; then he started it to chug-chugging, standing still. Then he started up slowly, and I walked along beside the auto, leading Beauty by a long hitch-rope. Without stopping I stepped into the auto, letting the horse walk for a few rods, and then the speed was increased to a trot. After going two or three miles it seemed to be an old story, and I don't believe there will be quite the same fear hereafter. [The horses are getting very much used to the automobile in our locality; but occasionally nervous women and crusty old men, by a sudden drawing-up of the lines until they are taut, yanking up the whip, etc., make the horse feel as if something were going to happen, and so he naturally looks around to see what the impending disaster is. It is well enough for drivers to be prepared; but we should not excite the horse unnecessarily.—Ed.]

Pickings from Our Neighbors' Fields
BY
"Stenog."

A French writer says the juice of common plantain is the best thing he has ever found to take away the pain of stings of bees, mosquitos, etc. As the remedy is sure to be always at hand (or under foot) it might be worth trying.

* * *

Bee-keepers generally live to be old; but this longevity is not accounted for solely by the use of honey, but by the inoculation of bee poison, either by breathing it or by being stung. So says *Gazette Apicole* on the authority of a French writer. Some have reported themselves as being unfavorably affected by the odor of a hive just opened.

* * *

I'm very sure it was Geo. W. York who first carried into practice the idea of teaching schoolchildren something about bees, in the public schools of Chicago. All honor, however, to others who keep up the practice. Children are easily interested in whatever moves, even if that mover makes them move sometimes in a hurry. The nearer our schools can be brought to practical life, the better.

* * *

In *L'Apiculteur* for October, Mr. C. P. Dadant gives a fine summing-up of the honey prospects of the United States for this year. The lateness of the season deters me from translating it, for the actual figures are better than any prophecy concerning it. He says there is sure to be far less than an average crop. I also learn from it that J. M. Hambaugh has left Southern California for Nevada, owing to the severity and frequency of the dry spells in the Golden State.

◆

L'Apiculteur advises bee-keepers to save all the propolis scraped from frames or other parts of the hive. A piece about the size of a black-walnut, when placed on a warm stove, will fill the room with the most delightful odor, rivaling the best essences. Pieces of it placed in drawers containing clothes will impart to them a most agreeable odor. Let bee-keepers take good note of this and save all their propolis.

◆

Dr. Miller says:

> Good thing to know that sharp eyes are upon us all the time. Over in Germany a bee-journal calls attention to a slip in GLEANINGS, p. 740, where the French journal, *l'Apiculteur* is called *l'Apiculture*. Now will some one tell us whether that spelling originated in Marengo, or whether it was the emendation of some genius in Medina?

Between *Bulletin d'Apiculture*, which is right, and *l'Apiculteur*, the mistake may have occurred here. *Apiculture* in French is the same as the English word so spelled; but *apiculteur* means the man, the apiculturist.

◆

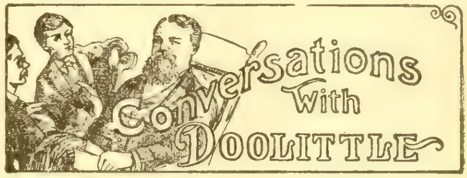
In the *British Bee Journal* for Oct. 13, Mr. John J. Ker makes the following good points on foul brood:

> Some few years ago one of my apiaries (containing some forty stocks) was almost completely destroyed owing to the ravages of this pest. I tried introducing new blood, and purchased a new queen direct from Italy, which was given to a colony and duly accepted. The following spring two of my stocks swarmed, and the young queens mated with Italian drones from the above-named colony. In course of time my other stocks dwindled down to seven, and these were ultimately burned, thus leaving me with only the one stock of pure Italian and two offsprings of the same. This, I think, points conclusively to the value of this particular breed of bees as possessing a certain immunity from the scourge of foul brood. I have had no return of the disease since the introduction of Italian blood, and am constantly improving my stocks by obtaining queens and stocks from all parts of the country.

◆

I take from the *American Bee Journal* the following rather caustic review of what Mr. W. K. Morrison said in these columns relative to glucose. Ordinarily such reviews should appear in the journal publishing the article in question; but perhaps Prof. Eaton had good reasons for inserting his criticism in the "Old Reliable."

> I can not see any valid reason why bee-keepers should object to the circulation of the "Wiley lie" when they countenance and spread such articles as that copied on page 698 from GLEANINGS, attributed to W. K. Morrison. Knowing the editors of the above publication, I would not accuse them of intentionally circulating false statements, but attribute them rather to ignorance or oversight.
>
> As regards the article, there is not a single truthful statement of fact from the first to the last sentence, nor in the introductory paragraph. To itemize:
>
> Pure glucose *is* sold for 10 cents a pound, and less. Chemists *do* refer to this article when they speak of the wholesomeness of glucose. The article referred to at 50 cents per pound is probably chemically pure dextrose quoted by Merck at $2.00 per pound, or chemically pure dextrin at $1.00 per pound—the chief constituents of commercial glucose.
>
> Glucose is *not* a particularly disagreeable article. The poisoning cases in Manchester, Eng., were from beer made *largely* from glucose instead of containing minute quantities thereof. The glucose was *not* used for color or body, but to supply sugar to make alcohol, thus making a cheaper beer than by the use of grain. The discovery was *not* made by *chance*, but by tracing the poisoning to the beer, and by chemical analyses thereof by public analysts.
>
> Use of glucose in beer is *not* the principal use to which glucose is put, its principal uses being in syrups, candy, artificial jellies and jams, and preserves. Good beer is free from glucose, and the glucose variety, if not an actual adulterated article, should be sold as *glucose beer*.
>
> Finally, the poisoning in the English beer was not due to glucose *per se*, but to an accidental impurity in the glucose—arsenic—which was due to some highly contaminated pyrite from which the sulphuric acid used in manufacture of glucose was made.
>
> Since the discovery of arsenic in glucose beer, many other articles made from sulphuric acid have been discovered to contain traces of arsenic. Sulphuric acid, however, has not been used in this country in the manufacture of glucose for many years, hydrochloric acid taking its place, which, when neutralized with soda, leaves nothing but common salt in the glucose, and which, being harmless, is not removed.
>
> There are plenty of grounds on which to fight the sale of glucose mixtures for *honey* without entering the field of fiction. PROF. E. N. EATON,
>
> *State Analyst for the Illinois Food Commission.*



EXTRACTED AND COMB HONEY FROM A COLONY AT THE SAME TIME.

"Hello, Doolittle! Got time for a little talk this evening?"

"Yes, Brown. The evenings are quite long now, and it is a good plan at this time of the year, and for the next three months to come, to talk and study up on the bee question, so as to be the better prepared for the season of 1905. But what did you wish to talk about?"

"My bees did not seem to work as well in the sections the past summer as I thought they ought to, and I am thinking of buying an extractor for next season, so that I can extract the honey out of the brood-combs when I put on the sections. I think there was too much honey in the brood-combs for good work in the sections. What would you advise?"

"Well, I would advise every bee-keeper having five or more colonies to procure an extractor, but I would not advise buying an extractor for the purpose you name, for I believe such a fallacy."

"How is that? I was talking with Mr. Smith in this matter, and he thought my plan would be all right."

"Many, like yourself and Smith, seem to suppose that something must be done in times of section honey to clear the brood-combs of honey to give the queen room to lay, so as to keep up the population of the colony, they apparently thinking that, when bees are working in sections, the brood-combs must necessarily become crowded with honey to its exclusion from the sections, while the truth is that, when the bees are at work nicely in the sections, with a proper-sized brood-chamber, there will be very little honey in the combs under the sections."

"How about that proper size? what should it be, in your opinion?"

"The bee-keepers of fifty years ago considered a hive containing from 2000 to 2500 cubic inches as the right size, and we find that some of them recommended the feeding of inferior honey a week or two before the honey-flow, so as to have the space in the brood-chamber, not occupied with brood, filled with this poor honey, this compelling the bees to put the honey gathered from the harvest in the boxes."

"Well, that would be strange from my standpoint. I should think such a course would stand right in the way of a crop of comb honey."

"It did not. It was a help, but not nearly so much so as would be the reduction of that brood-chamber to one containing only from 1500 to 1600 cubic inches."

"Please explain how it helped."

"By thus feeding they gave the bees no place to put the honey they gathered except in the boxes, thereby losing the use of this inferior honey for half a year or more, besides having the boxes separated from the brood by more or less distance of sealed stores for the bees to pass over, which was, of course, a detriment; yet, even with these faults they secured more honey than they would otherwise, because the first honey gathered from the fields went into the boxes instead of into the brood-combs."

"I think I begin to see the matter in a new light. But how differently do you manage?"

"My plan to accomplish this object has been to have the hive or brood-chamber of a size that an average queen will keep filled to the exclusion of honey, thus keeping the section boxes close to the brood. If you will try this you will find that the queen will keep the combs in a hive of 1500 to 1600 cubic inches filled with brood, except, perhaps, the extreme upper corners; and if any honey is to be had from the fields, the bees will put it in the sections, as there is nowhere else to store it. This is one of the secrets of successful comb-honey production."

"But this does not touch the extracting part, does it?"

"Let us see. Suppose you should extract all the honey from the brood-combs in the 2500-cubic-inch hive every week or so, as you seemed to suppose was necessary, it would be doubtful about your getting more than a few pounds of honey in the sections, if you got any at all. Bees will not enter the sections and build comb therein so long as there are plenty of combs containing empty cells close by the brood for them to store the honey they gather."

"I had not thought of the matter in this light, and it certainly does look that way."

"Yes; and let me say further, you may take a hive of 1500 to 1600 cubic inches, and fill it with frames of sealed honey, and put on the sections, and then put a strong swarm in it, made by the "shook" plan or natural swarming, the same having a good prolific queen, and in two weeks' time you will have nearly all of said honey in your sections (provided the bees are gathering some from the fields), and the combs below nearly filled with brood."

"But how about the old hive? Will not the combs therein become filled with honey?"

"If you allow a first swarm to issue, or make a shook swarm from any hive, and prevent all after-swarms, by the time the young queen becomes fertile every available cell in the brood-chamber will be filled with honey if the time is during the honey harvest, with a good flow on, and still no start will be made in the sections. But just so soon as she commences to lay, the bees will go to work in the sections, and in 16 to 20 days, if we examine them, we shall find scarcely a cell of honey in the brood-combs, and as nice a lot of brood as we ever saw. Now to get at the point you wished to know, we will suppose that, just as this queen was fertilized, we had extracted all the honey from the brood-chamber, to give the queen room for her eggs, what would have been the result?"

"I will return the question back to you for an answer, for you have upset all of my former notions on the subject."

"The probability would be that we should not get a single section completed on that hive, unless the season was long continued, or the fall flowers gave a good supply; for the bees would go to storing in the cells made empty by the use of the extractor, before the queen had filled many with eggs; and, having plenty of room for the present in the brood-combs, and not entering the sections when they should, they would have restricted the room of the queen, which would result in no honey in the sections, combs crowded with honey, and a weak colony for winter—or, at least, this has been *my* experience."

"Well, I am near enough convinced that you are right to try this plan another year. But may I ask what frame and hive you use to give the 1500 to 1600 cubic-inch brood-chamber?"

"When I was conducting the most of my experiments I was using the Gallup hive and frame exclusively. These hives, as originated by Mr. Gallup, held 12 frames; but I soon made hives to contain only 9 of the frames. With the purchase of an out-apiary containing ten-frame Langstroth hives I was led, gradually, to adopt said hive, so that I now use these more largely than the Gallup."

"But a ten-frame L. hive is larger than was the twelve-frame Gallup, and either contains more than 2000 cubic inches, while you have been talking about a hive containing from 1500 to 1600 cubic inches."

"Yes, I see an explanation is needed. In connection with the ten-frame L. hive, I use dummies so that I can reduce the hive to any capacity which the queen is occupying with brood at the time the harvest begins. A few of the hives are reduced as low as 5 frames at this time, more to 6 frames, the majority to 7 and 8 frames, some with 9; and in a few exceptional cases the queen will occupy the whole 10 frames. In this way we can secure the best results in accord to the laying capacity of the queen."

Editorial
By E.R. Root.

STORES FOR WINTER.

OUR friends are asking by the score how much honey or sugar stores their bees will require during winter. While this question is answered in all the text-books, it may be well to state here that we figure on from 10 to 15 lbs. indoors, and from 15 to 20 outdoors. An ordinary comb, when filled full of sealed stores, weighs anywhere from 4 to 5 lbs. By glancing over the combs one can, therefore, estimate according to their filling about the amount of stores he has; then feed if necessary.

THE CENTRIFUGAL WAX-EXTRACTOR ALSO A HONEY-EXTRACTOR.

I OMITTED to mention in the write-up of the centrifugal wax-extractor that the cut on the right side is to show how the same machine may be used for extracting combs as well as hot wax. A pair of wire-cloth screens properly braced are dropped down into the baskets, one on each side. The combs are then leaned up against these, when a rapid whirling of the basket will throw out the honey in the ordinary way. Of course, the combs have to be lifted out to be reversed.

THE CANDIED-HONEY SEASON AT HAND.

THE season for putting up candied honey in bags, or cutting candied honey into bricks, and wrapping it up in paraffined paper, is now at hand. We are doing a nice little business locally in this line. Our employees prefer it to the liquid or even the best grades of comb honey. Full particulars have already been given for putting up honey in this form, so it will not be necessary to repeat them. If you would like to know how it is done, send for our 1905 catalog, which will be ready for delivery by Dec. 1st. Those who are at all skeptical should test their local markets, first explaining why such honey is absolutely pure, why it must be of the very best in order to granulate solid, for it is well known that an inferior and imperfectly ripened honey will not become hard like cheese or butter in a cool atmosphere.

SIDELIGHTS FROM THE ST. LOUIS CONVENTION; BEE-KEEPING AS A SPECIALTY.

A PAPER read by Mr. W. Z. Hutchinson, on bee-keeping as a business, was an excellent one. He showed what specialty had done in certain lines of work, and urged upon some bee-keepers the importance of devoting their whole attention to bees. This would require keeping more of them, enabling the same tools and outfits to yield a larger revenue for the capital invested. As I have already given the substance of Mr. Hutchinson's able arguments on this subject some issues back, I will not reproduce them here. But the paper as a whole called forth a most spirited discussion. It developed the fact that there are but few who make bees a specialty, the great majority preferring to keep bees in connection with some other pursuit. Dr. Miller poked a little fun at Mr. Hutchinson by asking him how many bee-keepers would be left in the field if all were to be driven out except those who made a sole business of it. "Not very many—possibly 200 in the United States," Mr. Hutchinson responded. "Well," said the doctor, "will you tell us what would be the subscription price of the *Review?*" This raised a ripple of laughter.

Mr. Hardy said he was only a farmer of 220 acres, a commercial photographer, and a bee-keeper. He started only three years ago with 18 colonies in bad condition. These he increased to 154, and took $134 worth of honey. The second year he did $750 worth of photographing, took $2750 from the farm, bought more bees, and sold $262 worth of honey. This year he made $592 by photographing, and took two tons of honey. He has been so busy he could not even read the *Review.*

Dr. Miller believed in specialization, but thought we made more advancement by having in our ranks those who carried on a mixed business. Mr. Abbott thought bee-keeping as a specialty was a dream. He, on the other hand, had been educating the farmer to keep bees, showing him how he could increase his profit with little extra outlay of labor.

The discussion developed the fact that there are many farmers who keep bees in a slipshod way. When foul brood got started they would allow it to be scattered, and infect the bees of the specialist.

Mr. Calhoun, of Missouri, was not a specialist. He took 15,000 lbs. of honey this fall, and 10,000 last season. At that time he was a mechanic, a blacksmith, making a living on the farm. He believed the times were advancing, and that the farmer was progressing too, and explained that he could not only make his farm pay, but his bees as well. One should go at his business intelligently with God, not as a one-eyed man raising only hogs and corn. Raising honey, he thought, was intimately connected with the farm.

Mr. Delong, of Nebraska, is one whom the readers of GLEANINGS ought to hear rather than read. He has an inimitable way of expressing himself, bringing a ripple of laughter all through the convention. He was, he said, what one might call a farmer bee-keeper. He owned a hundred head of cattle, 50 acres of orchard, 400 acres of land, and several hundred colonies of bees, at one time having 525. But he did not believe the farmer could make bees work for nothing and board themselves. He facetiously put it this way: A friend of his asked him how he got so many bees and so much farm. He replied that he got them by sitting down at the corner grocery, whittling boxes and telling yarns. The bigger the yarns, the more bees and farm he got.

Mr. Krebs thought the discussion had taken a sort of side line, or, rather, it assumed that Mr. Hutchinson would drive everybody out of the business of keeping bees except the specialist. Mr. H. meant nothing of the sort. As he understood it, the bee-keeper should be a specialist to the extent that he should understand all the tricks of the trade; but that in order to make the most money he should keep bees only.

I wish I could give space to all the testimony that was offered. One man had paid off a mortgage on a farm with his bees. Another had increased his income. There was not enough flora in his locality to warrant keeping bees on a large scale, but there was enough to make a few bees a very nice side line.

IS GRANULATED HONEY IN AIKIN'S PAPER PACKAGE A BENEFIT TO THE MARKET?

This was one of the questions that was thrown into the question-box. A lively discussion followed, showing that the general subject of candied honey had received careful thought on the part of many of the members present. Mr. France explained that he wrote that question at the request of one of the members, the idea being whether the *effect* of the granulated honey on the market was injurious, or whether we should push the business and seek to *educate* the public.

Mr. Brown, of California, had had some experience with it. He had put his honey in oyster-pails, and it did nicely till hot weather came on, then the honey had a tendency to ooze, forcing its way through the paper. He admitted, however, that his packages had not been paraffined.

Mr. Weber, of Ohio, thought we should educate the people to know granulated honey was pure. The general impression was that honey in that form was nothing but sugar. We might have a good trade if the public could only be convinced that honey in that form was all right.

HOW TO KEEP HONEY LIQUID FOR A YEAR OR MORE.

Mr. Lovesey, of Utah, had tried to sell it in Salt Lake City; but, in spite of all he could say, his customers would insist that it was sugar. He had to reliquefy all the honey, and even go a little further—put a little amber in it to darken it, because their water-white was not thought to be pure. He then gave a twist to the discussion, that had a practical bearing. He found it was necessary for him to keep his honey from granulating as long as possible. The only way to do this was to keep it at a low temperature, 100 or 120 degrees, for several days. When honey was heated higher than 120 it lost some of its flavor, he thought. When asked how he heated the honey he said he did it on a gasoline-stove having three burners.

Mr. Dadant took issue with him, saying he thought the honey ought to be put in a vat surrounded by water. His firm had sold granulated honey in pails for many years, and their trade had become educated to it.

Mr. Abbott did not think that heating honey in water was necessary. He had done a large business in selling bottled honey; and whenever the packages candied he took them back and subjected them to dry heat. To put them in water would spoil the labels, making it necessary to wash, wipe, and relabel.

Several assailed Mr. Lovesey on the advisability of keeping honey hot so long; but Mr. L. explained that, while the temperature might go up to 120, it was usually not more than 100—sometimes less. This low temperature long continued would put the honey in a condition to keep liquid for a whole year; while a higher temperature, say of 150 to 160, for only an hour, might not prevent it from granulating again inside of 60 days.

We have had a good deal of proof given in these columns at various times to show that a low temperature long continued will keep honey in a condition where it will stay liquid and clear for a great length of time—sometimes for two years. Mr. Henry Alley used to sell this as a secret, but I believe he has since given it to the public.

LOCATION OF THE CONVENTION NEXT YEAR.

At one of the sessions there were several speeches in favor of the convention going to various places. Messrs. Muth and Weber, of Cincinnati, spoke in favor of that city. Mr. H. H. Hyde made a strong plea for San Antonio, saying it was in the heart of one of the best honey-producing sections in the United States; that there would be a large local attendance; that San Antonio had once or twice stepped aside in favor of some other city, and now he thought that, as a matter of justice, his city should have the convention next year.

Mr. Benton invited the bee-keepers to Washington, D. C., and Mr. N. E. France presented an invitation from the bee-keepers of Oregon. This matter as to where the convention shall go rests entirely with the executive committee. It is possible that they may ask for informal votes from bee-keepers, and make their decision accordingly.

THE BEE CONVENTIONS TO BE VISITED BY THE EDITOR WITHIN THE NEXT FEW DAYS.

I EXPECT to attend the following conventions, occurring at different points as follows: The Chicago Northwestern at Chicago, Nov. 30 and Dec. 1; Southwestern Ohio and Hamilton Co. Bee-keepers' Association at Cincinnati, Dec. 2; the Minnesota bee-keepers' convention at Minneapolis, Dec. 7, 8.

A KINETOSCOPE MOVING PICTURE OF A SWARM OF BEES.

We have just purchased a new moving-picture outfit of the very latest pattern—the best that can be obtained. With this I expect to project not only some new lantern-slides but a moving picture of a swarm of bees at the above conventions. This latter will take about 15 minutes to show. Bees are seen pouring out of the hive, flying in the air, clustering on a limb of a tree, are sawn off by their owner, are dumped in front of the entrance, are seen running in, are literally scooped up by handfuls, and finally hived. There are a few other interesting novelties in connection with this picture, all of which will be given at these conventions.

At some of our future meetings I may show in a moving picture the process of shaking or brushing bees to prevent swarming; the process of extracting, etc. There is nothing like seeing a thing done step by step to learn how.

I had intended to be present at the Toronto convention of Canadian bee-keepers on November 15th to 17th; but I find it impossible to get away at this time. I will endeavor to atone for this by going next year. But I shall be glad to meet all of our friends at any of the conventions above mentioned.

I understand that Mr. N. E. France will be present at two of the meetings, viz., at Chicago and at Cincinnati. He will then go on to the Harrisburg meeting, which conflicts for me with the date of the Minneapolis meeting. But for this I would have gone on to Harrisburg and given there a moving-picture exhibition.

This same outfit with the moving pictures, together with some of my best slides, will be shown in many of the different towns and cities of the East during the coming winter. We have made arrangements with a prominent lecturer, the Rev. D. E. Lyon, of Matawan, N. J., also a skillful bee-keeper, to give his celebrated lecture before many of the farmers' institutes and bee conventions of the East. If you have a chance to take in his lecture, do so. His dates will be announced later. Or possibly he may be induced to fill some dates at farmers' institutes. You can write him and see.

A SIMPLE PLAN FOR RELIQUEFYING CANDIED HONEY IN THE BOTTLE.

In my report of the St. Louis convention, given elsewhere in this issue, I referred to the statement made by Mr. Abbott that honey in bottles that has candied can be very readily reliquefied by exposing them to dry heat. This I regard as a very valuable hint, coming just at this time. For some months back we have been reliquefying our bottled honey without removing the labels or corks. The bottles are put into a tray having a coil of steam-pipes under them, subjecting them to a temperature of not more than 105 or 110 degrees. When the granulation all disappears the bottles are taken out without even wiping, and are then ready again for the shelves.

"But," you say, "how about those who do not have steam-pipes?" The back oven to a stove, or even a regular bake oven with a low fire, doors left open, will give the same results; or, better, put the bottles on a wire screen two or three inches above the top of the stove for over night, where they will get a bottom temperature but not very much heat at the corks. If over night does not prove to be long enough, and the stove is needed for other purposes, put the bottles back on again as soon as the stove can be spared.

Some of our correspondents have told of putting the jars back of the stove on a table or shelf, and letting them stand for perhaps a week at a temperature of from 80 to 100 degrees. This is an excellent plan. They will liquefy very slowly; but this very fact will make them resist granulation much longer than if they were heated to 150 or 160, and liquefied in an hour or so.

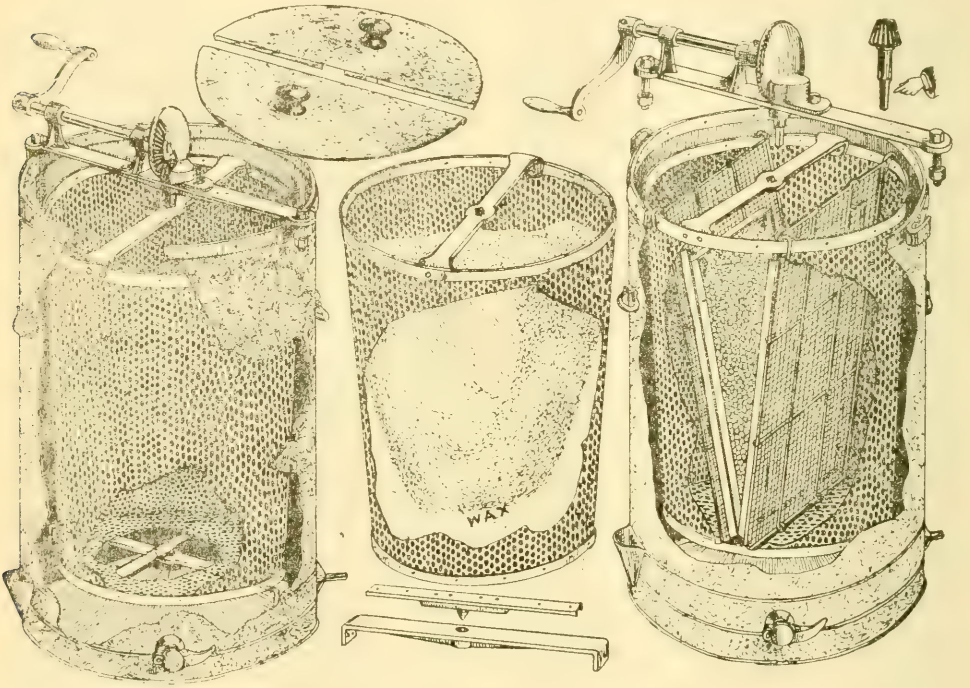
It might be well to explain that, if the temperature goes too high—to, say, 150 or 160 F., the bottle may have to be recorked.

EXTRACTING WAX BY CENTRIFUGAL FORCE.

Some months ago, Mr. T. J. Pennick, of Williston, Tenn., suggested the use of centrifugal force applied to hot slumgum taken out of boiling water. In his opinion the free wax, when hot, would be by this means readily separated from the solid matter in a very short time, and he desired us to test the idea to see whether it would work. We accordingly constructed a cylindrical basket, slightly smaller at the bottom, with a shaft at each end to be inserted in a regular honey-extractor, one end of the bottom shaft being inserted in the bottom bearing of an ordinary honey-extractor, and the other end geared to the regular crank of the extractor.

Old combs were put into boiling water; and as soon as they had become a sodden mass they were dipped out while steaming hot, put in the basket, and given a rapid whirl for two or three minutes. Nearly all of the free wax was thrown out against the sides of the can. The slumgum was next pawed over and given another whirl. The effect of the centrifugal motion is to throw the wax through the perforations of the cylindrical basket, against the sides of the can; and the more rapidly the crank is turned, the more the slumgum will creep up on the inside of the basket, for, it will be remembered, the basket is larger at the top.

Our experimental machine is like a small honey-extractor except that the revolving part is cylindrical instead of having a reel holding two baskets. The bottom shaft of the tapering cylinder is journaled into the bearing secured just above the false bottom of the can. To the top of the cylinder is secured a cross-arm, in the center of which is inserted the square shaft and pinion, the latter meshing into the gear of the crank-shaft. A slight circular twist of the cross-arm supporting the crank and gearing disengages it from the hook-shaped ears into which the two end bolts are slid, so that the whole thing can be lifted off. The cross-arm in the basket has a square hole into which the taper shank of the small pinion-wheel is inserted loosely. When the cross-arm is removed this pinion shank slips out of the hole, leaving the basket free to take out and dump.



CENTRIFUGAL WAX-EXTRACTOR.

When ready to extract, an inch or so of water is poured in the lip in the bottom of the compartment of the extractor. It is then set on the stove, or, preferably, over a single gasoline-burner, close to the floor. When the water boils and steam is generated, old combs and slumgum are poured into the basket, and then the cover-lids are put in place. The operation of extracting wax is now much the same as with the German wax-press, for the steam is allowed to pass through the mass until much of the wax runs out by gravity. When the refuse is hot, the handle is turned briskly, throwing out free wax. The remaining solid matter will creep up on the sides of the cylindrical basket, exposing a large surface to the action of the centrifugal force. As soon as the wax has ceased to strike against the sides of the can, the lids are removed, and a stick claws the contents over; then the lids are replaced, and the reel is revolved again at a high rate of speed. As soon as the wax ceases to come out, the cross-arm and reel are removed by loosening the two end bolts and giving the arm a quarter twist. The basket is then dumped, put back in place, the cross-arm secured, when it is ready for a fresh batch of slumgum.

The process can be greatly facilitated by melting the slumgum in a large kettle with hot water and then dipped into the centrifugal wax-extractor and given a whirl. Steam should be generated in the lower compartment to keep the refuse hot while it is subjected to the centrifugal force.

While experiments so far conducted have shown that this machine will give good results in some cases, yet a considerable quantity of wax is very often left in the refuse. This fact is shown by taking some of the steaming-hot slumgum in the hand and squeezing it, which produces fine yellow lines of wax in the creases between the fingers.

Although the machine does quicker work than the press, it wastes wax, and this is a most serious fault. It would indeed be penny wise and pound foolish to use a machine that would waste even a small percentage of so valuable an article as beeswax.

We prepared illustrations with the expectation of putting the machine on the market. It is somewhat disappointing that it should seem inadvisable to put it out just yet if we do at all.

THE ANALYSIS OF HONEY.

To what Extent may we Depend on it? the Definition of Honey.

BY WILLIAM A. SELSER.

It is a blessed thing that the advancement in scientific research has made it possible to detect, not only the adulteration of honey, but the doctoring of it with acids and chemicals, as well as to discover in many cases, by analysis, if the bees have gathered the nectar from any source other than what the government defines honey to be—"nectar from flowers."

Within the last year new States have been added to the list of those passing pure-food laws; and these laws have been made so stringent, not only regarding adulteration, which is adding in quantity to honey some substances other than those gathered by the bees, but they also attach a penalty to doctoring honey with any substances whatever, in the slightest degree. So it is very important for the bee-keeper to realize that, if he does any thing to his honey except heating it in the regular way, heavy penalties are attached to the sale of it by the pure-food laws of the different States.

Honey may be pronounced pure by the average chemist, and yet if only a few drops of phosphoric or salicylic acid are added, or the least quantity of glycerine or other substances which are well known to help keep extracted honey from candying, it is a violation of the pure-food law.

In order to set at rest throughout the United States in various courts of law what honey is, the Bureau of Chemistry in the Department of Agriculture at Washington has defined honey as follows: "Nectar gathered by the bees from flowers, and deposited in wax cells." Therefore it follows that what is often called honey, fed from granulated sugar taken up by the bees, deposited in cells and capped over, is not honey. It also follows that honey-dew deposited in cells, and capped over, is not honey, nor is juice gathered by the bees from the grape, peach, or any other fruit or any other substance whatever, though taken into the stomach by the bees, and taken into their honey-sac and chemically changed, and deposited in cells, pure honey. This has been a most marvelous revelation of recent occurrence. For years I have made a special study of analysis of all kinds of honey in their relation to the pure-food law, and I have demonstrated beyond a question that there is often honey put on the market that the bee-keeper feels he had nothing to do with in adulterating, which would be thrown out by the pure-food inspectors as adulterated.

A gentleman from Conshohocken, Penna., brought the writer a sample of very pretty good-bodied honey which he said his bees gathered from grapes when they were punctured by other insects, or burst open from being overripe. The writer impartially put this honey through severe tests in the laboratory, and discovered conclusively by analysis that it was not pure honey. I was greatly surprised to know that, in the reading of the polariscope, the results indicated this condition.

In 1902 I visited some of the large apiaries of Mexico, Texas, and Southern California, as well as Colorado and other points. I took from the hives personally what I was confident was the honey gathered from the various sources, and I found in every instance where the bees had gathered the various honeys from the blossom of the flower or plant that the analysis showed pure honey. I very carefully filed for reference the various results from the different honeys. I also visited a section in the mountains of Redlands, Cal., to get some honey supposed to be gathered from the sugar maple, but I found that the bees do not gather enough at the time of storing surplus from this to get a sample, as had been reported previously by some that they would do, but that some samples of honey sent from California, that were reputed to be gathered from this section, were adulterated and mixed by the honey companies putting it up, who tried to shield themselves behind this pretext.

The question has come up repeatedly by the laity, that, if bees gather any thing from any source, and it undergoes a chemical change in their honey-sac, and is deposited in cells, and capped over by them without the aid of man, could we declare it adulterated? I would answer, most emphatically, "Yes," and the court refers back to the government definition for the answer in deciding the case. Therefore I say, chemically speaking, honey-dew is not honey. I advise all bee-keepers who know their bees are working on honey-dew not to put it up in any way so that it may be marked pure, as it would be a violation of the pure-food law if sold in the various States having such laws.

Recently there has been honey that was absolutely pure, excepting the addition of a small quantity of phosphoric acid to prevent its granulating, which the pure-food inspectors of Ohio have thrown out as adulterated, and as an infringement on the pure-food law. While the addition of the phosphoric acid was in very small quantities, said to be only a few drops to the gallon, yet it was discovered by chemical analysis, and declared to be a violation of the pure-food law.

Prof. H. W. Wiley, Chief Chemist of the Bureau of Chemistry, at Washington, has had a number of vigorous young men fed on the various preservatives, salicylic acid with the rest, to discover how much damage to the linings of the stomach these various preparations do. There is no question in the writer's mind that they are very injurious, and Prof. Wiley so states. Just the extent of their damage, and the result of his experiment, are on file in the Department, but the writer is not familiar with them.

It has certainly been a boon to the bee-keeper, at least those who wish to do an honest business, to know that any manipulation whatever of their crop of honey will be discovered, and that the government has been so persevering in giving us laws that are so helpful.

Jenkintown, Pa.

A VISIT TO SWARTHMORE.

A Near View of Mr. E. L. Pratt.

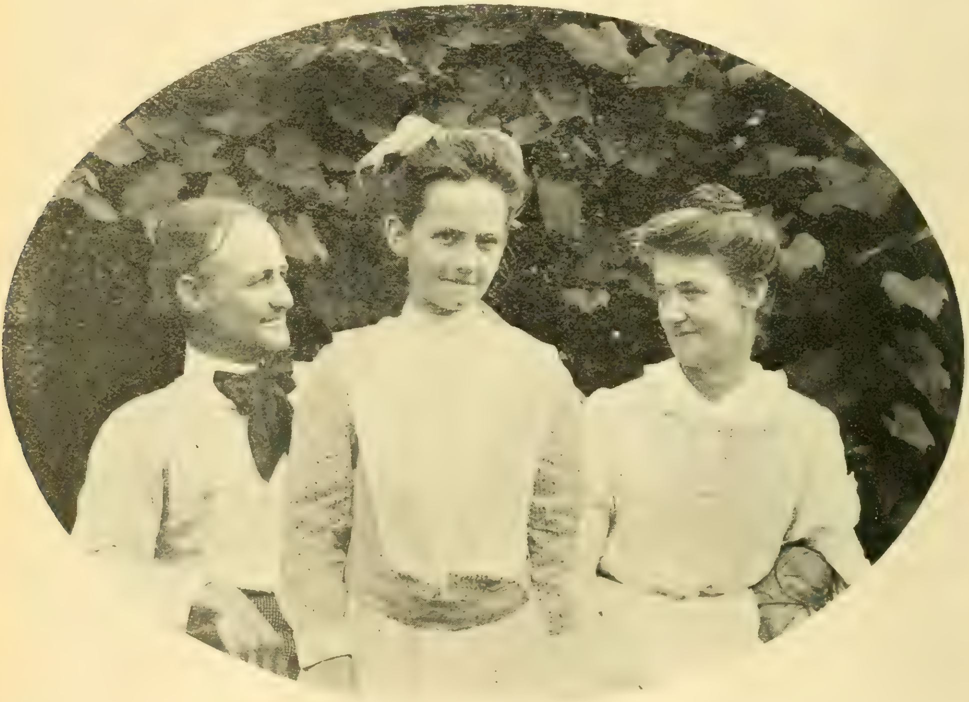
BY DR. E. F. PHILLIPS.

The readers of GLEANINGS have for some time been familiar with the writings of Swarthmore, and the new methods described by this writer have caused considerable comment among bee-keepers. For this reason some may desire to have the *nom de plume* Swarthmore cast aside for a while that they may get a view at close range of Mr. E. L. Pratt, of Swarthmore, Pa.

The writer of this article has had the pleasure of knowing Mr. Pratt for over a year, and has repeatedly visited his yard, and the editor of GLEANINGS requested an article telling something of the man and his work.

Swarthmore (the town) is reached by trolley from Philadelphia in about an hour from the center of the city. At the end of the Darby line, in the old village of Darby, the suburban line to Media begins, and we take this line to reach Swarthmore. This line takes us through a beautiful country, and on our journey we pass through several small towns in which, like the town which is our destination, are the homes of people having business in the city. At Swarthmore is located the college of the same name which is under the management of the Society of Friends, or Quakers, as they are commonly called. On this account most of the streets of the town are appropriately named for the leading colleges and universities; and the apiary which we are to visit is located near the corner of Yale and Vassar Avenues.

Before seeing the yard let us meet the man behind it all. The engraving here printed is a very excellent likeness of Mr. Pratt. He is a man of short stature, rather artistic in his make-up, and with a deep sense of appreciation of what is worth while in this life. He to some extent disregards conventionalities, and appreciates more than most men the fact that what is lasting and of greatest value is not the hurried scramble after money, but careful solid worth which will stay and be of value to mankind. Of course, he is in the queen-rearing business for money, and he does a good business too; but at the same time he continually experiments on new methods, and spends much time studying the habits of the bees. I suspect that some bee-keepers will be surprised at my statement that the subject of this sketch is



MR. PRATT, HIS WIFE, AND DAUGHTER GRACE.

a conservative man; in fact, I am fully aware that he has been criticised for advocating methods which have not been fully tried out and which will not work; but from my acquaintance with Mr. Pratt I am sure that he never wrote a description of a new method unless he had first used it with success. That others have failed on trying the same thing is another story; but I am convinced that always this result has been due to a careless reading of his articles or a lack of knowledge of the habits of the bees themselves. Although my list of acquaintances among bee-keepers is rather limited, I believe from what I have learned that but few of them are as careful students of the habits of their bees as is Mr. Pratt. In addition to his work in the apiary, Mr. Pratt is the editor and publisher of *The Swarthmore*, a weekly newspaper.

The apiary is not a large one, the numbers of full-sized colonies being about sixty; but since Mr. Pratt has no helpers, and since his methods of work do not require a large apiary, he has never increased his stock. Next spring he expects to increase to one hundred, but this will be all that one man can possibly care for under the system used here. In addition to these full-sized colonies there is a large number of small mating colonies—"baby nuclei," the number in use depending on the season of the year, so that practically the yard is as large as that of most queen-breeders, and a very large number of queens can be and are produced every year. In addition to this yard there is an outyard with a few large colonies for producing drones, and a goodly number of mating nuclei. The object of having this outyard is that small nuclei may be made up in one yard, carried to the other yard and opened at once, thus making it unnecessary to confine the bees for three days.

SWARTHMORE MAKING UP SMALL NUCLEI.

To go into a description of the queen-rearing methods of Swarthmore would require more room than can be used here, even if we were to give but a superficial account, and this is unnecessary since the readers of this journal have had the opportunity of reading of this system in articles by Mr. Pratt himself. The main points of this Swarthmore system are the laying of eggs in queen-cells by the breeding queens, to save the long process of grafting; the use of flanged wooden queen-cell cups to make handling easier, getting large numbers of queen-cells accepted by the "swarm-box" method, and the use of small mating-boxes; and, above all, superiority of this system rests on the fact that its use does not necessitate the stirring up of the bees in the hives when the cells are being handled. Almost the entire process may be gone through without the use of a smoker, and the bees are not taken away from their work by the puffing of clouds of smoke into the hive. If the reader will try the following experiment, the advantage of little smoke will be evident: Puff a hive full of smoke from any of the infinite number of patent smokers now on the market; repeat in a few minutes, and wait beside the hive until the first bee leaves to gather honey. This experiment requires considerable time, for the wait will be a long one; but it will be time well spent if the experimenter has been in the habit of using his smoker too freely.

The use of small nuclei for mating is the part of the Swarthmore system that has been most debated by bee-keepers, and we will not go into this subject at this time. This is not the chief point in the system, however; and, even if larger colonies are used for mating, the rest of the system may be profitably studied. The use of royal jelly has been shown by Mr. Pratt to be but a waste of time; the use of artificial cells, although it did not originate with him, has been advocated by him, and is now widely used; the laying of eggs in wooden cell cups by the breeding queen saves much time formerly spent in transferring larvæ. These and other points are as useful as small nuclei. Mr. Pratt was, I believe, the first to use compressed wax cell cups.

Every bee-keeper has certain pet ideas of his own, and certain tools or fixtures about his yard which are not used by other bee-keepers—that is, if he devotes much attention to his bees. Queen-breeders especially are each one the advocate of some particular method. All of this is right, and indicates that these men are trying to arrive at the best method of work. In addition to his own methods the queen-breeder should study the other systems; and of these none is more suggestive than the Swarthmore system. But few, possibly, will care to use this method entirely unmodified; but before condemning the system, as some have already done, the bee-keeper should be perfectly sure that he has tried it.

Mr. Pratt has also devoted much time to the breeding of a particular strain of Italian bees which he calls the "Golden-all-over" bees. The name describes them well, for they come as near to filling the description of the old Roman poet Vergil as any bees that I have seen. These bees are not cross, as are some of the five-banded bees, but are the most gentle bees that have come to the notice of this writer. Their honey-gathering is said to be good; but I am writing only of what I know, and on this subject I have had no experience with them.

In conclusion I would commend to your good graces my friend Mr. Pratt. He is a good fellow, and is worthy of the careful consideration which you may give to his writings.

A PART OF THE YARD AND HONEY-HOUSE.

Philadelphia, Pa.

THE HOFFMAN FRAME PRAISED.

Tried Many Others, but Likes Hoffman Best; its V-edge End-bar Condemned.

BY C. DAVENPORT.

I read the symposium on Hoffman frames with much interest, and I should like to be allowed to give my opinion on the matter. As you probably know, I am one of the few who make a specialty of bees, or, in other words, I depend on and make a living entirely from bees; and I believe there are but very few who have depended upon bees alone for their entire support as long as I have.

I have tried about all kinds of frames that have been described in print, and many others; and if I were obliged to choose and use any of the frames offered to the public I would take the Hoffman, as I consider it, even as now made, to be superior to any loose hanging frame or other self-spacing frame with which I am acquainted, and this without any regard to locality; for I do not believe that there is any place on earth where propolis is any worse than it is here. But after all this I wish to state that I would not take and use the Hoffman frame, as now made, if they were given to me and I were paid a bonus of five dollars for every hive I used them in. This may seem like a strong assertion, but it should be remembered that frames, barring accidents, will last a lifetime; and five dollars a hive would be no temptation for me to use the Hoffman frame as now made the rest of the time I hope and expect to live. Still, the frame I have used largely, and am changing to entirely, is but little different from the regular Hoffman. The end-bars are just the same, except that the edges are all square. The V edge is the greatest objection I have to the regular Hoffman; and although, Mr. Editor, I know you do not agree with me in this, I wish to be frank about the matter, and say that I do not believe you or any other intelligent man, after using thousands of these frames, both with and without the V edge, as I have, would, in a locality where propolis is as bad as it is here, tolerate a V edge for hardly any money consideration.

In theory the V edge is a nice thing; but in practice and use I have found that the square edge is far better. With two square edges together, if they are pressed up close there is but little chance for them to be glued so that it is hard to separate them; but with a V and a square edge together the case is far different. The channel or open space on each side, caused by the V, will be filled solid full of glue, which is, of course, also fastened to the square edge; in fact, I do not see how any thing better than a V and a square edge could be devised to enable bees to glue frames together. But so far as sticking together is concerned I don't care much if any thing about this, for I can separate them all right. The trouble is, they are often stuck together so tight that they will not separate at the joint; but the projection, either on one frame or the other, breaks off. I have broken hundreds of frames in this way. Of course, any one could tinker away and finally separate them at the joints; but I have not time for this in the busy season.

When I open a hive and wish to remove a frame I take it right out, or at least I take out the top-bar (in a few cases with the V edges this was all I got). Another strong objection to a V edge here is that they are great bee-killers. There is so much propolis plastered in and around these V edges that they soon become much wider or thicker than a square edge.

One more of the many other things against the V edge is that there are three different ways these frames can be nailed together, and each will work all right — that is, those that are all nailed one way will work together, but they can't be used with those that are nailed either of the other ways. As you probably know, there are two ways to nail these frames, and have a V edge on each side of the top-bar; that is, I can start nailing them together, a V edge on each side of the top-bar; and as long as I keep on the way I started, my frames will work together all right. But you start the other way, although you have a V edge on each side, and yours will work all right together; but yours and mine can't be mixed or used together.

ANOTHER VIEW, SHOWING SWARTHMORE AND VISITORS.

Last spring I went to look at some colonies a party wished to sell, and I found these frames had been nailed up in a still different way. Both V edges were on one side of the top-bar, and both square edges on the other. These frames could not be used with frames nailed either of the other ways, nor even reversed among themselves. I know that you explain in your catalog the right way to start nailing them; but I do not believe one person in a thousand would see or understand that there are two ways to start, and still have a V edge on each side of the top-bar. I have found that about as many started one way as another. This matter has been a nuisance to me, both in buying and selling bees.

Now in regard to the top-bar, I do not want a bar ⅞ inch thick. A bar 1⅛ wide and ⅝ thick suits me far better, and I have no more burr and brace combs with such a bar than with one ⅞ thick; and I do not want any comb-guide nor saw-kerf and wedge. for either starters or full sheets can be fastened to a plain bar with melted wax much quicker and more securely than with a saw-kerf and wedge; and a molded top-bar, or one with a comb-guide, is a nuisance to clean.

After further experience I have decided that I want a top-bar full length. Staples and a short bar work all right in hives that are straight and true; but if a hive is warped or gaped at the corners it is a different matter. I also want the top-bar to run out full width clear to the end. As now made they give a better chance for one to insert the fingers at the ends; but these small ends with me often break off, and then the bar is ruined.

Another advantage of small ends is that the bees do not have such a chance to stick them to the end of the hive as they do with a bar that is full width at the end; but this advantage can be had without weakening the bar at the end, by simply cutting off each corner, so that just a point of the end-bar touches the end of the hive. I pointed the ends of about 500 frames in this way last winter, and after one season's use I can see no fault with the plan. It gives the bees no chance to fasten the end of the top-bar to the end of the hive, and the frame is not weakened in the least, for it is left full width where it rests on the rabbet.

Southern Minnesota.

HOFFMAN FRAME ESPECIALLY ADAPTED TO INCOMPETENT HELP.

Hoffman Frame Come to Stay.

BY H. H. HYDE.

Mr. Root:—I have read your symposium on Hoffman frames; and as I have been an advocate of a special form of that frame I feel that I must have a word to say.

In reply to Mr. Green, page 930, I wish to say that division-boards are worse than useless in ten-frame hives, and I do not approve of their use in eight-frame hives. Where bees are run for extracted honey we use only 7 frames in an eight-frame hive, and 8 or 9 in a ten-fame hive. If we desire to use the frames for brood-combs we carefully scrape the edges of the projecting end-bars, and then they are ready for the brood-chambers. In fact, once a year we go through our bees and scrape off all surplus propolis from the hives and frames. We do this in the spring of the year, and we thus have clean hives and frames to manipulate during the busy season. To scrape the bees thoroughly is not nearly the job you might imagine it to be. One man can easily clean from 25 to 50 colonies per day, and he ought to get nearly enough wax to pay for the work; but if he does not, we get the money back in time saved later on in manipulations.

On page 931 Mr. de Beche remarks on the excellence of the Hoffman frame, especially where hired help is to be considered. Where much of the work is dependent on hired help I can not see how any one can get along without Hoffman frames. I know that we can not here in Texas. Again, when it comes to moving or shipping bees, or practicing migratory bee-keeping, the Hoffman is the only hanging frame that we can at all consider. Referring further to his mention of propolis, I will say that, if properly made hives are used, and Hoffman frames too, and both hives and frames are well cleaned each year, the manipulations of the Hoffman frames will be a pleasure indeed.

Please note F. Rauchfuss' opinion of the Hoffman frame on page 933, and he agrees with me exactly. Give me long top-bar frames and square edges on the end-bars, no matter how bad propolis is; for by proper spring scraping you can keep your frames easy to manipulate at all times.

Allow me to reiterate my formerly expressed preference for frames having a top-bar only ½ in. thick. These are thick enough to prevent any sagging, and we do not have any more brace-combs with top-bars ½ inch thick and 1 inch wide than we do with the heavier article. We save just this much wood and get the brood that much nearer to the supers. When it comes to bottom-bars, give me one at least ¾ inch wide and ⅜ thick; then we have a bar that will stand the racket. This, with long tops for the top-bars, and square edges on the end-bars, constitutes the ideal Hoffman brood-frame.

To discontinue the use of the Hoffman frame would be a step backward in the wrong direction. That frame is here to stay, and I for one am glad of it. We have used it for comb and extracted honey largely, having operated as high as 1200 colonies of bees, and we have not found it wanting. Keep them going, and you will make no mistake.

NO DANGER OF POISONING BEES FROM PARIS GREEN SPRAYED ON COTTON.

I have noticed during the present season one or two requests for information, and your replies, in regard to the use of Paris green or other poisons on cotton, and note that the editor is of the opinion that bees may be poisoned by working on cotton poisoned to kill insects. I wish to inform you that such is not the case, and I do not believe that there is an authentic case on record where bees were poisoned by working on poisoned cotton. Several years ago while in Williamson Co., the leading cotton county in the State, each fall the cotton was poisoned for the army-worm, and our bees worked heavily on the cotton, and so did all the bees in the entire country roundabout; and so far as I know there were never any bees poisoned, nor any poisoned honey carried into the hives. I think bee-keepers may rest easy on this matter, and may safely stand by and let the cotton-men poison all they want to.

San Antonio, Texas.

[The discussion on Hoffman frames has not been without its value. The suggestions made in our symposium on page 930, Oct. 1, and by our two correspondents as above, are in line with those made at different times by various users of the Hoffman frame. It is, perhaps, not too much to say that we are seriously considering the advisability of making end-bars with square edges, and, not only that, but a little thicker. During the season of 1905 we shall be prepared to furnish either square or V edge as an option.

Whether it would be advisable to make the top-bar thinner is a question. A frame with a ⅞-thick bar is very much stiffer than one with only a ½-inch bar.

As manufacturers we desire to have the truth; and especially do we wish to know what the users of these frames want. We shall be glad to hear from others of our correspondents, either privately or for publication, for the votes that we get will determine to a great extent what our future policy with reference to these frames will be.

It is, perhaps, unnecessary to state that both of these articles came unsolicited.—Ed.]

Heads of Grain
from different fields

A PLEA FOR ENAMELED CLOTHS AND QUILTS.

Mr. Root:—Is there not also a bright side to the enamel-cloth question? I can see that you have a decided opinion on the use of enamel cloths and quilts above the brood-nest; moreover, this opinion is, doubtless, based upon practical experience. I therefore ask you, not to raise an argument, but to gain information, whether you have not found points in favor of the cloths that might counterbalance the blemish you have set forth from time to time?

Barring the cost of the cloth and the labor involved in hoisting that proverbial "20-lb. stone," or adjusting such other fastening as will serve to hold the cover in its place, is not the bee-keeper to be envied who can "peel" his enamel cloth back at his own pace, with his faithful smoker driving down any turbulent spirits as each successive space is exposed? When he begins operations on a hive, he requires no tool whatever. That "hermetically sealed" cover must be pried ever so carefully if one would avoid that fatal snap as it leaves the hive. Next thing, instead of single hives of combatants (I mean no injury to the little bee by applying this term), there is a whole sea of bees to be driven down between the frames. If you have proceeded so far without receiving a sting, then good. But the bees that remain adhering to the cover are still a nuisance. They have no access to the honey "vats;" the queen you are looking for is possibly among *them* instead of being on the combs you are examining. They become restless, and, having been deprived of that "good dinner," they may leave the cover and drive you *to* cover. Well, suppose they don't, and you have been successful in your operations. Those bees on the cover, if they're any good, will not have been idle in this interim either. I warrant that they have shifted their position; they have either crawled into a position that will be unpleasant for your hands, or one that is not conducive to their longevity, should the cover be carelessly replaced. Why would it not be better to keep the bees from trespassing on the cover at all? also in this bee-space system, when new fixtures are used and ruptures have been made in the exalted hermetic seal, there still remains the danger that the cover may be lifted off by a demonstrative gust of wind.

Also, what is the objection to a hive built with a bee-space below the frames and none above, if you pass over the difficulties you may have experienced with the quilt? I think I could point out at least *one* advantage; namely, the immunity from burr-combs when breeding in two stories.

I hardly think the catacomb-like condition of which Mr. Bowey writes on p. 848 could obtain where there is no bee-space above the frames. R. Wueste.

San Diego, Cal., Sept. 8.

[There is no denying the fact that the enamel cloth has some good features, chief among which is that of peeling off without arousing the anger of the bees. Its undesirable qualities I have already given, and will not repeat them here. To put the bee-space at the bottom instead of at the top would be a serious mistake. If it is desired I will at some future time give the reasons why. It would require an extended article to explain.—Ed.]

HOW MANY ACRES OF HONEY-PLANTS WILL BE REQUIRED TO SUPPORT 100 COLONIES?

How many acres of good honey-plants are required to keep 100 colonies of bees busy during its blooming period? Can some alfalfa man tell about how much honey an acre of alfalfa would produce? also how many acres of the same clover are required for 100 colonies of bees? F. W. Morgan.

De Land, Ill., Oct. 24.

[No definite answer can be made to your question, as every thing depends upon the locality and the honey-plant. As a rule we may say that basswoods will yield a larger amount of honey per acre than any other plant unless it be the logwood of Jamaica. In a general way we may say that honey-yielding *trees* will yield more honey per acre than any shrubbery or plant.

In some localities 1000 acres might take care of 100 colonies; but as a rule we may figure that it will require much more than this. As a general thing bees do not fly much further than a mile and a half from the home yard. This would make a circle of three miles across, or 4521 acres. If we allow liberally for wooded lands, cultivated lands, and dwelling-houses, probably we should have to cut down this amount by at least a half, probably a little more, so that, in the height of the honey season, taking clover and basswood as they may come in, 100 colonies would not have access to much more than 2000 acres. This would make an aggregate of 20 acres per colony.

If we turn to the alfalfa regions we shall probably find a much smaller acreage required to take care of 100 colonies. Just what this acreage may be I could not say, and therefore leave it to some of our alfalfa-honey producers to give us any available data they may have.

This is an interesting problem, and it has some practical bearing, because this question of overstocking has come to be a very serious one. In the alfalfa localities it can be definitely known how many thousand acres there are of this plant for a range of 1½ miles. One can, therefore, determine pretty closely how many colonies can work profitably on a given number of acres of alfalfa.—ED.]

OVERSTOCKING.

In regard to the subject of overstocking, it is surprising how many there are who seem to think that, because a locality will support ten or fifteen colonies and give good returns, it is a "*fine bee-range.*" It seems to me that one of the principal reasons that, the more colonies you have in a location, the less honey you get per colony, is *not* because there is not honey enough within range, but because many bees visit the same blossoms only to find that some bee just preceding it has sucked all the honey, and still there is just enough scent of honey to attract them, and thus thousands of bees visit flowers one after another, only to be disappointed; whereas if there were few bees in the same field each bee would have to stop on only a few flowers when it would have a load, without having exhausted either strength or time, and both time and strength count heavily during a flow of honey. It is like going into a chestnut-grove. The first trees you reach you begin to pick up burrs, and possibly find one out of a dozen that has not already been robbed of its contents. I believe that bee-keepers are beginning to realize the importance of smaller apiaries and more of them. D. R. KEYES.

Quitman, Ga., Oct. 17.

BEE PASTURAGE PROTECTED BY LAW.

Mr. Root:—On page 967, "One thing is certain: If bee-keeping ever becomes as stable and reliable a pursuit as other lines of agricultural industry it will be when a man can feel just as sure of the pasturage for his bees as he does of the pasturage for his cattle, and that time will never come till he has some legal rights in the case."

If the above may be understood to mean that an individual bee-keeper should have legal protection as an exclusive occupant of a given territory, that time will never come. I think no sane person would contend for a moment that an owner would not have a right to cut his basswood timber, even though it might destroy the bee-pasturage; nor that he would not have the right, ethically and legally, to cut his luxuriant alfalfa before it blossomed, nor that he would not be justified in plowing under his white-clover pasture, and planting the field to corn if he desired to do so, though his bee-keeping neighbor might be compelled in consequence to feed his bees.

Who shall say that he shall not have the right to use his own, which he may utterly destroy? No legal rights will nor can be given in cases such as referred to, because no law can be found to meet the case without interfering with the personal rights of individuals in the control of their own property. No court in Christendom, not even a cross-roads justice, would sustain such a statute unless he had "a bee in his bonnet."

WM. M. WHITNEY.

Lake Geneva, Wis., Oct. 21.

GETTING RID OF FERTILE WORKERS AFTER BROOD-REARING IS OVER.

While I am aware that it has been said that no successful bee-keeper would allow his bees to be so long queenless as to get fertile workers, the fact remains that many do. Even our good friend Dr. Miller gives us a valuable point on page 968.

To keep them out entirely requires a lot of looking-after, which many times is unprofitable, and at times impossible. While it is best to examine before the honey-flow is over, and brood-rearing as well, it often happens after this is done that fertile workers will get to business. Particularly is this true of colonies which supersede after the main crop is over.

To get rid of fertile workers the rule is to "give several frames of young bees," which is practically impossible late in the season. Transferring larvæ into their queen-cells is also out of the question. Uniting is usually practiced; but even then if both colonies united are strong enough to winter alone, one is virtually lost. I give you a method which enabled me to preserve the colony and get rid of the nuisance.

Go to a colony which can spare three or four frames of bees—the more the better, for fertile-worker colonies are usually weak. Be sure you leave the queen behind. Place in an empty body, and put back frames of honey in place of those removed. You take the body and bees to the fertile-worker hive. Place a wire screen over the fertile workers, and the frames and body over the screen, the same as is done in uniting. As soon as the bees in the upper story find they are confined and queenless, give them a queen, which they are in just the condition to accept. After three days remove the screen and the job is finished. If you are in doubt as to the result, just watch the little fellows carry in pollen where they before were idle—this being, of course, on the supposition that the queen has been accepted in the story above.

G. A. BOSTWICK.

Verbank Village, N. Y.

WINTERING INDOORS IN A MILD CLIMATE.

I have just bought 75 colonies 45 miles from home. There is a good sawdust-packed house, walls and all, 8 inches of sawdust. They have been kept in the same for years.

I can not be on hand to open doors nor watch a thermometer. Shall I risk the house for winter? I should like some one to answer who has such a house.

Hopkins, Mo., Oct. 8. J. C. STEWART.

[I am not familiar enough with the locality under consideration to advise you what would be your best course; but my impression is that, in a climate like yours, where the bees can not be looked after indoors, it would be far better to winter in double-walled hives outdoors; indeed, they might winter all right in single-walled hives. In many portions of Missouri this is just the way the bees are wintered, and with fairly good results. In a mild or moderate climate, indoor wintering does not usually give as good results as leaving the bees outdoors, particularly where they can not be looked after.—ED.]

WHY GLUCOSED HONEY SELLS; AN EXPERIENCE IN SELLING TO THE STORES AND TO THE CONSUMERS DIRECT.

On page 833 you speak of people buying mixed honey from seeing the word "Honey" prominently displayed on the label. I think that the cheaper price has more to do with it than any thing else.

I have personally sold honey to over 210 different people this season; and in several places where I called I was told that they could buy a whole quart of "lovely" syrup for ten cents—just as good as my honey for which I asked 10 cents per pound or 35 cents per quart, can included. Well, I told them, "Just eat your 'lovely' syrup if you like it; but investigate a little, and may be you will like it better." In regard to the pure-food law, before it was passed nearly every grocery in the few towns where I am acquainted kept extracted honey in jelly-tumblers on the shelves, bought through the wholesale grocery dealers. I have taken some pains to see if they still continued to sell it. I have found it in only one store this year, and that had been on the shelves for a long time. Evidently our pure-food law is of some use, although the sale of "corn syrup" is very large; but so long as it is sold for what it is, I suppose it is all right.

Another thing which puzzles me is, that I can go to the villages where I usually sell honey, and sell a lot; but the storekeepers can not sell any when I leave it with them. One case in point: I sold in my home village eight dozen quarts early in the season. Six weeks ago I left nine quarts with one of the merchants, and he has sold two, although several who have asked me for honey I have referred to him for it. Is this common or exceptional? J. A. CRANE.

Marion, O., Sept. 20.

[Very likely the price is the determining factor in the sale of these cheap glucose syrups in preference to honey. I have sometimes thought that, if honey could be put up in such shape that it could be sampled by intending purchasers, by taking a spoonful of it, and at the same time let them taste a sample of this cheap stuff, the honey would outsell the other solely on its merits.—ED.]

A NOVEL EXPERIENCE IN INTRODUCING A QUEEN.

Some weeks ago I ordered a queen of a reliable breeder, and when she reached me I set about to introduce her by the common method as usually laid down in directions on the cage; but the colony would not accept her, so I concluded I would try a plan just a little different. I went to another hive and placed their hybrid queen in a cage to give it her scent, leaving the caged queen in her hive six or eight hours; then taking both queens and cages to my store door, right on the floor I killed the hybrid and threw her out and opened the end of the cage containing the bought queen to let her run out so I could grab her and put her in the cage from which the other queen was taken. She was too quick for me. She darted out like a rocket, and was gone for good, as I thought. I could hear and see her occasionally for hours. Several times I gave her up as lost; but she would return and hover around the door, watching her cage, which still contained her escort. Sometimes she would be gone for half an hour at a time, and then I would hear her coming back, and I would take my hat and try to whip her inside so as to close the door and secure her, and I did finally succeed in whipping her inside and catching her at the window, and introduced her to the colony; but she died in about two weeks.

I feel certain that she would have finally gone into the cage which was all the time on the floor, her escort calling.

Wofford, S. C. S. CHEATHAM.

[There is not much doubt that the queen would have returned to the cage from which she made her escape.—ED.]

A PULLET CAUGHT IN THE ACT OF EATING BEES.

I was down looking at my bees, and saw a large pullet walking around. A little closer watching showed she was looking for bees. She caught quite a number, and then came up to the hive and took five from the entrance, and hunted for more. This is new to me, but may not be to you.

Ephraim, Utah. ANDREW ARMSTRONG.

[Yes, there have been many reports to show that chickens, after they have once acquired the habit, will eat bees, both live and dead. But there are only a few, comparatively, that learn the trick. As a rule we may say that chickens do not give any trouble in a bee-yard.—ED.]

BUMBLE-BEES ROBBING HONEY-BEES.

Did you ever hear of the common bumblebee robbing from bees? My wife one day called my attention to a dead bumble-bee among some drones in front of one of our hives; and while we were discussing the occurrence another one entered the hive, and was immediately dragged out, but at last succeeded in going in, and we supposed they were robbing. C. L. SNIDER.

Avoca, Minn., Sept. 26.

[Yes, there have been a number of reports of how bumble-bees have had the temerity to push their way into the entrance of a hive of ordinary bees. The result has been either a dead bumble-bee or one so badly scared from the tussle that it concluded discretion was the better part of valor.—ED.]

ONE HUNDRED DOLLARS FROM FOUR HIVES.

I am a paper-hanger by trade, and have 12 acres just outside the city limits. I can not give the bees the attention they should have to get the best results. I had only 4 hives this spring, but have increased by natural swarms to 14, and have made about $100 off the bees clear, besides all we use ourselves (about 200 lbs.). I like the Danz. hive because it is easy for an amateur to handle. I winter outdoors, and cover all sides but the south with tar paper, and pack hives in leaves. They seem to do as well as if not better than in the cellar. R. GRIFFITH.

Kenosha, Wis., Sept. 30.

[Reports of this kind almost go to show that bees pretty nearly work for nothing and board themselves. It is indeed a fact that a few colonies will often give their owner but very little trouble comparatively, and yet will yield a tremendous dividend on the investment.—ED.]

BEES POISONED BY VISITING COTTON SPRAYED TO KILL MEXICAN WEEVIL.

I see what Sam Alvord writes with regard to poisoning bees from poisoned cotton. I have two out-apiaries, one of 115 colonies. My neighbors poisoned the cotton to kill the Mexican weevil, and I lost half of my bees. The major portion of the bees would stop on the leaves, grass, and trees, and die. Only a few would get to the hives. Many of the bees would die in the open, even before getting to the hives. Cotton is generally poisoned in the morning while dew is on it. H. BOOTON.

Richmond, Texas.

[Your report does not seem to agree with that of Mr. H. H. Hyde, in this issue; and therefore we may conclude that spraying cotton, in some localities at least, does not do any damage. In yours it certainly was the cause of the loss of the bees.—ED.]

RHEUMATISM NOT CURED BY BEE-STINGS.

As there in so much said in the bee-journals about rheumatism and bee-stings, I will give you my view of it. In the first place, what is rheumatism, and what causes it? I am strongly against any person making a gain out of any advertisement that recommends bee-stings to cure rheumatism. This disease is caused by a disordered liver and impure blood, therefore it must be worked out of the system. I think I have been stung as much as any person, but the only way I can keep the rheumatism down is by keeping the liver in working order.

Gobles, Ont. THOMAS ARCHER.

[We have had some reports, some showing that bee-stings brought about no relief, and others showing apparently that they did effect wonderful cures. A good deal depends on the nature of the disease and the subject; we have two reports in hand now that go to show what the bee-poison has done, and here they are. Besides that, we have a number of others in manuscript that will be given from time to time.—ED.]

SCIATIC RHEUMATISM; A REMARKABLE CURE AS A RESULT OF BEE-STINGS.

I have been trying the bee-sting remedy for the rheumatism. I was taken two years ago this month with a severe attack of sciatica, and have not been able to lie on my right side since until within the last two weeks. I commenced about two months ago, and have taken only five or six applications of from six to ten stings at a time, but it has always relieved me of pain within half an hour, and no bad results. My last application was the 9th. I have thrown away my cane, and feel more myself than I have for a long time. I have tried to have several try it, but they think the remedy worse than the disease, but I don't. I expect to apply one or two more doses of stings of not less than ten or twelve at a time. It is not very bad when you get used to it.

Ludlow, Mass., Oct. 17. E. N. FISHER.

In reply to your request I will say that, from 1893 till the spring of 1900, I suffered a good deal with rheumatism. Since then I have been handling a good many very cross bees, and getting stung many times a year. During these four years I have suffered but very little from rheumatism; and as I have not done any thing else for it I believe that it is bee-stings that have cured me.

Havana, Cuba. J. S. PATTON.

OUR HOMES,

BY A. I. ROOT.

Whosoever drinketh of the water that I shall give him shall never thirst; but the water that I shall give him shall be in him a well of water springing up into everlasting life.—JOHN 4 : 14.

The above text is one I have used before; but an editorial in the *Sunday School Times* has given me a new thought on the subject. Here it is. See what you think about it:

> One has often heard of that spring, as sweet as any that ever gushed from sunny hillside, which a traveler once found by the sea when the tide had ebbed away. Then the sea rolled in, and poured its bitter floods over the little spring, hiding it out of sight for hours, wrapping it in a shroud of brackish waters. But when the tide ebbed away again, the spring was still pouring up its sweet stream, with no taste of the sea's bitterness in it. Such a spring should the love in our hearts be. Though floods of unkindness and of wrong pour over us, however cruelly we may be treated by the world, whatever injustice we may have to endure from others, the well of love in our bosom should never retain a trace of the bitterness, but should be always sweet.

It comes to me the more vividly because I have seen springs just like that. Down in Florida, where artesian wells are so common, there are quite a few of them that are covered part of the time by the tides. You may remember I mentioned one away out in the ocean. The pure water, being lighter than the salt water, it rises above it and spreads out around it for quite a distance; and in that locality one can dip pure nice drinking water right from the surface of the ocean, without getting any salt or brackish taste at all. I have been for years praying and striving for such an attitude of heart that, no matter what happens, I may be calm and unruffled in spirit. I have prayed and striven, not only to love my enemies, and to do good to those who hate me, but I have tried hard to do it *right away*. Right while the unkind words were on somebody's lips I have tried to show the world how a soft answer turneth away wrath. But a good many times it has been very poorly done, I must confess. Most of the time this well of living water in the shape of love toward my fellow-man *has* been pouring forth to at least some extent. When something unkind or undeserved or uncalled-for comes very suddenly, the little spring is not only covered up, but, I greatly fear, it stops running entirely. When I thought one of the boys in my Sunday-school class said he hoped they would drop me out of the flying-machine (the boy did not say it, mind you—I only *thought* he did) I fear that little spring stopped running altogether.

Dear brother or sister, if you have in your feeble way tried to be a Christian worker you have doubtless at times met with a rebuff or criticism that made you feel for a while as if you would have to give up trying to do anybody any good. Sometimes it is a little thing said sneeringly; or Satan may have persuaded you it was said sneeringly, which amounts to the same thing. I have known a good brother or sister to stay away from prayer-meeting, stop going to Sunday-school, and perhaps declare they would never undertake to teach another class; but what would become of the world if we allowed Satan to put us out in this way? We can not always go unruffled. Sometimes the little spring of "peace and good will" will be checked for a time in spite of us; but as we grow older we ought to learn by experience that it only encourages *Satan* to push ahead when *we* give up; and if we do this, and keep right on, profiting a little by past experience each time in the way of unkind clips, we shall soon get so we shall not mind such things so much. When I started these Home papers, over 25 years ago, a good many times I felt greatly hurt by unkind and severe criticisms. But I do not believe I thought seriously of giving them up while God gave me life; but I have many times decided to be more careful, to listen more closely and prayerfully to the guiding influences of the Holy Spirit, and eventually these criticisms have resulted in good. On page 342 of the *Bee-keepers' Review* for October, Bro. Hutchinson mentions a little incident:

> At St. Louis I sat down near two bee-keepers who were having an earnest discussion. The first sentence that caught my ear was as follows:
>
> "I tell you, we don't care what his views are on the temperance question, and he has no right using space in his paper to air his views on the subject. We buy his paper for what it can tell us about bees, and not to learn its editor's views on temperance."
>
> The other man replied: "I don't agree with you. When a man owns and publishes a paper, he has a right to put into it what he pleases; and if we don't like it, we needn't take his paper."

Of course, I did not feel much hurt at this frank criticism, for the other man gave him a very good answer; and I am glad Bro. H. gave it a place in the *Review*, for it has set me to thinking, and I presume it has set a good many others to thinking. I am glad the temperance question was mentioned first, because it gives us an excellent illustration. The man or woman who is not always ready with an outspoken opinion on the evil that is the greatest factor in filling our penitentiaries and poorhouses, it seems to me would hardly be up to the times. The editors of our daily papers are nearly all up and on the alert, and outspoken in defending temperance. I wish I could say as much of some of our magazines. Perhaps not all papers of large circulation are defending temperance; but the periodicals that are doing the most good in this land of ours are certainly expressing themselves more or less freely. I believe the periodicals that are doing the most good are the ones where the editor comes out fairly and squarely with his convictions. Occasionally we take up a paper where we can not make out whether the editor has any opinion at all. We often read scientific news where we feel a longing to ask the editor what he thinks about it.

I once saw a brief item in a newspaper in regard to a new flying-machine. It seemed to me incredible that any thing like the statement was going on so near the point where I was then located. I cut it out and asked the editor what he could tell me about it. He replied, "Of course, it is true. Mr. A. is quite a wealthy man, an excellent citizen, and has been following this thing for the greater part of his life." With this encouragement I made a trip to see the inventor. In this case, of course, there were very good reasons why the editor should not say in print what he wrote me in private. Now, there are other periodicals where you can not for the life of you find out any thing about the proprietor. You can find stereotyped notices that are scattered all over the paper, saying, "We are of the opinion that Mr. A.'s cough cure is one of the best in the world," etc. But who cares for an editor's opinion when said opinion is sold to anybody for 25 cents a line, etc.? Now, it is those who come out openly before the world and express their views on temperance and religion that get the unkind clips. You can avoid them by listening to Satan when he tells you you had better keep still.

Years ago I started a mission Sunday-school in an adjoining town where saloons were rampant. Everybody was pleased, and the school was a success. But one Sunday afternoon, after the school was closed, I did some mission work that resulted in getting a lot of saloon-keepers into a lot of trouble. One of them, who had been on quite friendly terms with me, came to me afterward and said, "Mr. Root, when you came down here and opened up a Sunday-school and taught our children, and while you were friendly toward everybody, and did not interfere with things outside of the Sunday-school work, we were very glad to have you around; but I want to tell you that, if you get out of your place, and stir up another such muss as you did just recently, you had better stay at home and attend to your own business, or you will get into a *worse* trouble, and that right quick—mark my words for it."

Had I been alone in the matter, perhaps I might have felt hurt, and concluded I had made a mistake. And, by the way, I *was* pretty much alone so far as *human* counsel or help was concerned, especially in that locality; but the voice of the dear Savior upheld me, and I remembered the words, "Blessed are ye when men shall revile you and persecute you, and speak all manner of evil against you falsely for my sake. Rejoice and be exceeding glad, for great is your reward in heaven;" and I did feel glad, and that spring of water kept pouring forth, notwithstanding those harsh and unkind words from one whom I had previously regarded as a special friend.

After all, there is not so much danger of this life-giving water being quenched by outside influences as those which come from within. Jesus says, "Out of the heart proceed evil thoughts, murders, adulteries, fornications, thefts, false witness, blasphemies; these are the things which defile a man."

All of my life I have been obliged to fight uncharitable thoughts and feelings; for these, if persisted in, will more surely quench this life-giving spring than anything our enemies or the whole world can do from outside of us. I am ashamed to say that, only last Sunday, when I should have been listening to the beautiful hyms of praise, my mind wandered from one to the other of the good friends who sat near me; and before I knew it I was dwelling on their infirmities and inconsistencies.[*] Finally I roused up and said, "Get thee behind me, Satan;" but in a little time, back I was at my old trick. Then I considered, and said to myself something as follows: "Look here, old fellow; if the readers of GLEANINGS could read your heart now, as they read your Home papers from the printed page, what would you have to say for yourself? Here in the house of God on this Sunday morning you have been guilty of condemning first one and then another until you had quite a string of them, and looked down upon them as if you were a great deal better."

The picture came up so vividly and strong that my mental prayer welled up, "Lord, help!" and then I felt afterward like adding, and truthfully, "May God have mercy on your poor sinful soul." Before long, by earnest prayer I gained the victory; and when I felt love and charity for all in the church that morning, then that little spring poured forth its living waters, "springing up into everlasting life."

NOTES OF TRAVEL

BY A. I. ROOT.

"THE CABIN IN THE WOODS" IN NOVEMBER.

When we reached our place, about Nov. 1, we were greatly pleased to find, as we had found so many years before, vegetation around the cabin almost uninjured by frost. Although every thing had been killed through Ohio and Southern Michigan almost a month before, we found tomatoes, string beans, and green corn in our garden; but we had a killing frost a week after. They have had a big crop of potatoes in the Traverse region. There has been no blight, no rot; and with the holding-off of frost, as I have mentioned, every thing was favorable.

We found our nearest neighbor, Mrs. Heimforth, with her boys, digging potatoes on the top of the highest hill on the farm. When I first got on to our place I said to my neighbor Hilbert that the tops of the very highest hills would probably be of little or no account. He, however, said it would be just the place for peach-trees. Well, here on one of the very highest hills, right close to my northeast corner, there was a crop of potatoes that would go in spots fully 200 bushels per acre. They were all nice, large, and clean. The principal crop was Beauty of Hebron; but as they were somewhat mixed we could see all over the field magnificent specimens of Empire State. We picked up some fine specimens, sampled them for dinner, and we found the quality superb. This pearly-white potato comes out of the sandy soil on the hilltops as clean and handsome as it could be washed with water. My neighbor Hilbert has another magnificent crop of Carman No. 3, of about 1400 bushels. The yield is almost equal to that of last year. You may remember I told you last year they ran almost too large for table use, and much too large for seed. I recommended at the time that he make them smaller by *very close* planting. I once succeeded nicely in getting some small Carmans by using 20 bushels of seed to the acre. Well, friend Hilbert did plant close, but there was one lot of seed pieces cut up and placed in a barrel on Saturday that did not get planted till the following Monday. This seed got hot, and, as a consequence, many of the pieces rotted, leaving in one particular spot only about half a stand. Each hill had such an amount of room between itself and its neighbor that not only the tops, but the potatoes as well, grew to an enormous size. A load of these very large Carmans was objected to in Traverse City because of their size. About Nov. 1st they were offering only 23 to 25 cts. a bushel in Traverse City. Within a week, however, the price went up to between 25 and 30 cts. I told my neighbors I thought even that was a rather small price. But Orville, Mrs. Heimforth's son, a bright young farmer of about 18, thought he could do very well in raising potatoes on the hilltops if he were sure of getting even 25 cts. a bushel.

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[*] I suppose this uncharitable mood was started by remembering something I had just heard about a brother in the church whom my eyes happened to rest on. The statement came direct, and the circumstances were such that I supposed the story of his shortcomings was largely true. On Monday morning, however, when I happened to ask the one who had been wronged something about it, I was astonished to find the man was entirely innocent. There was nothing in it at all. This illustrates how exceedingly careful we should be about repeating stories of how a church-member (or anybody else for that matter) has done something a good man ought not to do. It seems as if one is really injured by going over sensational stories about Christians, or say ministers, who are really untrue to their sacred profession or calling.

Now, peaches and potatoes are not the only thing these hilltops are good for. Another neighbor showed me a Baldwin apple-tree close to his house, from which he picked last year *47 bushels* of apples. I told him I would give that tree a write-up. But he said, "Now, Mr. Root, if you do, I want you to tell the whole story. This spring I found the tree dead, root and branch." Will some apple-man tell me whether it was the great crop or the hard winter, or both, that killed the tree? If the former, could he probably have saved the tree by a severe thinning-out of the fruit?

Mrs. Root and I enjoyed our walks in the woods wonderfully. She walked with me about five miles visiting neighbors the first day. This pretty nearly used her up; but by resting up one day she was ready for more tramping. It is strange how soon one gets his muscles hardened up so as to climb hills with impunity. Our last day around the cabin was spent in cutting a foot-path through a part of our woods where we had never been before. It is through a long crooked ravine that they would call a "canyon" in California. This ravine was tangled up with great trees that had fallen for years past. Some of them were four or five feet in diameter. By the use of a sharp ax, hatchet, brush-hook, and a hoe, we made a crooked path up to the northwest corner. We call it the "Northwest Passage." When we came out on the summit of one of the highest hills we found ourselves in a neighbor's apple-orchard. But didn't we enjoy those apples after our work! Then we went over the big hill and admired his outdoor cellar for storing potatoes and apples. It is cut into the side of a sandy hill, pretty nearly on a level with the floor of the house, so the good wife does not have to climb up and down stairs. Here is another hint toward saving labor—that is, where you have a sandy hill close to your dwelling.

While the corn crop has been remarkably poor throughout Ohio and Southern Michigan, it is unusually good in the Traverse region. But this does not mean that the crop is equal to the corn crops usually grown throughout the great West; for Northern Michigan is not a corn-growing region. Mrs. Root and I both had the experience over again we have had for years past, in finding rest, recreation, buoyant health and spirits, in our northern home. Traverse City is putting up more buildings than any other place I know of, and some of its recent structures are about as fine edifices as you will find in some of our largest cities. It is still a clean city, without any coal smoke. By the way they are crowding the saloons it looks as if they might be clean in other ways than getting rid of the coal smoke. If I remember correctly, the saloons are all not only compelled to shut up on Sunday, but at 11 o'clock at night. When the beer-men began to grumble at this the temperance people informed them that, if any change were to be made in the hours of closing, it would be to *10 o'clock* instead of 11.

HIGH PRESSURE
GARDENING
BY
A. I. ROOT

APPLES—SOMETHING MORE ABOUT THEM.

A few days ago the foreman of our machine-shop said one of the boys gave him an apple that came from one of the trees in our orchard, and he said it was the best apple he ever tasted in his life. He wanted to know if I had any for sale; and if I did, he said he wanted them, no matter what the price—that is, within the bounds of reason. Now, what apple do you suppose it was? The Gravenstein. It is a beautiful apple in shape, exceedingly handsome in color, and since my attention has been called to it I do not know but I too can call the Gravenstein equal to any apple I ever tasted. It is a fair-sized apple, not extra large, almost round, striped with brilliant red, perhaps a trace of yellow. It has one particular feature that makes it look remarkably tempting. Wherever a leaf rests on an apple, usually around near the stem, under the leaf it is a delicate white, shading into a rosy red where the light gets in, giving dashes of pearly white, occasionally, as if a painter had dabbed his brush just a little here and there. The apple can hardly be called sweet or sour, but it is a beautiful combination of both. It is quite juicy, and many of them are water-core; but when fully ripe it almost melts in the mouth like a peach. They commence ripening about the first of September, and last pretty well throughout October.

Our readers may remember that I have spoken twice about an apple-tree that commenced bearing remarkably early. In fact, it had three or four nice apples the season after it was taken from the nursery. At the time, I called it the Porter apple, and said it was about as early as the Early Harvest. Several of our readers protested that the Porter ripened along in the fall. Well, I have just discovered this season that the two trees were misplaced. The one I was talking about is the Yellow Transparent. The real Porter apple-tree did not commence bearing until two years later. This year there were perhaps twenty or thirty great beauties on the Porter tree. They ripened about with the Gravenstein—perhaps a little earlier—a very large conical-shaped apple, yellow in color, and one of the best in quality, according to my notion. This year the twenty or thirty apples were none of them wormy so far as I could discover, and nearly if not all were quite perfect in shape. I wonder if this is a peculiarity of the Porter. It is a beautiful cooking apple, and when dead ripe Mrs. Root said it would make nice sauce in *ten minutes*. By the way, Mrs. Root's favorite cooking apple is the Twenty-ounce Pippin, sometimes called Cayuga Redstreak. This cooks about as quick as the Porter, is of excellent quality, and the apples grow so large that one of them will make a pie or a bowl of sauce. Our very large apples, or large any thing else, is seldom of the best quality. Hold on! that might mean men and women; and lest some of my big friends take offense I will say it does not apply to people. Well, the Twenty-ounce is not only tremendous in size, but it is excellent in quality. About the only objection I know to it is that many are of bad shape, and all or nearly all have a warty uneven surface. They do not pare quite as nicely as the Gravenstein and the Porter.

There is one more apple that rejoices the hearts of our whole neighborhood, especially the juveniles. We bought it for a Mann apple, but there is some dispute as to whether it is the genuine Mann. These commence ripening a little after the Early Harvest, and they continue to ripen gradually for almost if not quite three months—say August, September, and October. They are about the juiciest apple I ever got hold of. The flesh is as crisp as a fresh stalk of celery. They do not grow very large—especially when the tree is loaded as full as it was this year. The Pomological Department at Washington said some specimens I sent them in October they thought were not the real Mann at all—that they lacked both in size and quality. The apple is pearly white when dead ripe. Prof. Brackett, of the Pomological Department, wishes me to say that he will gladly name any apple you may have in your orchards, and the Department will send boxes for the specimens so that you can mail them without cost. This is done to encourage people in calling apples by their right names. The Department has several bulletins to dispose of free of charge on apple culture—varieties, etc.

Now, my good friend, if you haven't one or more apple-trees of your own, so you can watch the fruit every day, see it put on its gorgeous colors, and ripen up, so you can pick it when it is just right, you are missing one of the great enjoyments the kind Father vouchsafes his children. Get an apple-tree; make a pet of it; study its habits and ways; and if it does not pour out a golden harvest for yourself and children (and *grandchildren*), then it will be the exception and not the rule.

Last evening I was very hungry. I had been working hard all day, directing and assisting the road-makers in the work of grading in front of our home, preparatory to laying vitrified brick. On the table I noticed a tempting-looking dish of baked apples. I think they were prepared by Miss Carrie. She is lately home from school, and is supposed to know how to do almost every thing in up-to-date style. Then we had some just extra nice graham bread. I rather think that Mrs. Root furnished the latter. For some reason or other the butter seemed especially nice. When I have graham bread and baked apples, somehow it seems as if a pitcher of cold milk is just the thing to make out a "balanced ration," and I think I never enjoyed a supper much more. Baked apples, graham bread, and butter and cold milk, constitute my ideal repast.

When I began praising particularly the baked apples, Mrs. Root remarked, "Why, perhaps you have not noticed it, but there is one variety of apple in our orchard that is especially nice for baking in this way. Can you tell what apple it is?" When I gave up guessing she informed me it was the Northern Spy. I think the apples were quartered, with the peel left on, and baked in the oven so as to have the juice run out and make a sort of sauce. Be careful not to put in too much sugar. It not only spoils them for my particular self, but I am sure it makes them indigestible. Many dyspeptic persons, I am sure, would be greatly benefited by cutting off refined sugar. Put in sweet apples for the sweetening, or use honey, the sweet that nature prepares without going through any factory. Now you want your graham bread made just right, and nice butter; and be sure to have a pitcher of nice cold milk. The cold milk comes in with the bread and baked apples like cranberries with turkey. And, by the way, with the above menu I do not want any turkey, nor meat of any kind; and tea or coffee or any other hot drink—take it away off somewhere. I do not want it around.

Now, to enjoy this bill of fare to its fullest extent it may be necessary that you should work hard out in the open air during some cool November day. But I tell you it is worth all it costs to get one into a mood for saying inwardly, if not out loud, "Praise God, from whom all blessings flow."

By the way, the Northern Spy, although a splendid apple for cooking, does not keep very well. But just have a good lot in your cellar, and then when you get tired reading books and papers during the long winter evenings go down and sort the apples over. Pick out every one that shows the least disposition to rot. When rot first commences, then the apples are in the very best condition for cooking, fully ripe, and easy to digest. If you enjoy nice apples as much as I do you will enjoy this work of sorting over. You want a good clear light, a pair of specs if you are as old as I am, and some nice clean potato-boxes. Take every apple in your hand, and look over and admire it. In this way you will never lose an apple by decay, and you will always have apples that are fully ripe, for daily use.

Now, do not get lazy, and push the apple-sorting over on to the shoulders of the dear wife. After you have sorted them as I have directed she will do the rest, I will guarantee.

INOCULATION OF SOILS WITH BACTERIA.

One of our readers sends us a printed circular offering to send enough bacteria medicine, or whatever is the proper name of it, to inoculate an acre of soil for a great variety of different crops. You must tell whether you want to grow corn, cabbages, potatoes, etc., and then these people will send you just the right *kind* of bacteria to increase greatly the crop. Now, if the Agricultural Department at Washington, or our various experiment stations want to send bacteria by mail free, to be tested, that is all right. But do not give your dollars to anybody or to any firm that says they can send you exactly what you want for alfalfa, sweet clover, or any thing else—certainly not till our experiment stations have indorsed it and the man who sends it out.

CLOTH-COVERED GREENHOUSES.

I notice by the November issue of *Country Life in America* that greenhouses (or perhaps cold-frames) covered with just cheap cheese-cloth, are being used successfully in many places, and that this cheap loose protection makes some vegetables mature two or three weeks earlier. This matter is simply carrying along a little further the cloth-covered frames mentioned in our book on tomatoes; and from the experiments I saw conducted at our Ohio Experiment Station I am satisfied this slight protection from the hot sun will be of great benefit to many things grown in the garden. It is so porous that it permits rains, etc. The one pictured in *Country Life* was worth more to me than the whole price of the journal; and, by the way, there is nothing handsomer in the way of fine illustrations in any magazine in the whole world, so far as I know. If you have never seen it, you want at least a sample copy.

THE "FARMERS' CYCLOPEDIA OF AGRICULTURE."

THERE has just been issued from the press of the O. Judd Co., New York, a cyclopedia touching many phases of agriculture, wide as that subject is. It takes up field crops, garden crops, fruits and nuts, cattle and dairy, live stock, poultry, fertilizers, drainage, soils, and irrigation. Under the head of "Miscellaneous" are included many items indirectly allied to the subject of agriculture, and it is right here that we find bees. Six double-column pages discuss bee-plants, hives, swarming, wintering, feeding, diseases, and literature. The article is well written, and, in general, is quite accurate, but bears evidence here and there of having been prepared by one who has not had practical experience in handling bees themselves. No doubt the two editors, Messrs. Wilcox and Smith, are practical men on the general subject of agiculture, on which they write, but it seems to us that it would have been a little better if they had called in a practical bee-keeper who could write an article based on his own personal knowledge. There is one place in the article, for example, that does not sound like one who is writing from experience. The author says, regarding the general subject of feeding bees up for the winter, "In many cases it will be found desirable to feed bees *during* the winter season for the purpose of bringing the colony out in the spring in a more vigorous condition" (italics ours). And, again, appears this: "In some experiments where extracted honey was fed back after the honey season was over, it was found that this was done with a profit of nearly six per cent."

In the first quotation, one would gather the impression that bees are fed *during* mid-winter, which is not the case, at least in the North, except in very rare instances when sealed combs or cakes of candy are given. The second quotation follows just after the first, and it seems to be out of place. The illustrations of the bees themselves are more like big flies than the insects that gather honey.

Still, this book is very instructive, and, taking it all in all, it is an excellent digest of a great subject, boiled down in a small compass. The whole book seems to be clear up to date, and no doubt it will make a very convenient work of reference. It can be obtained of the publishers. It is sold in cloth at $3.50; half morocco, $4.50.

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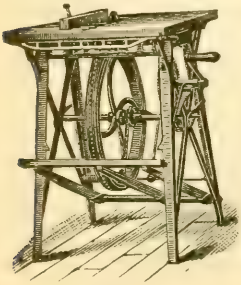

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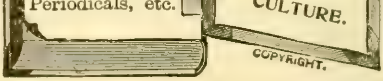
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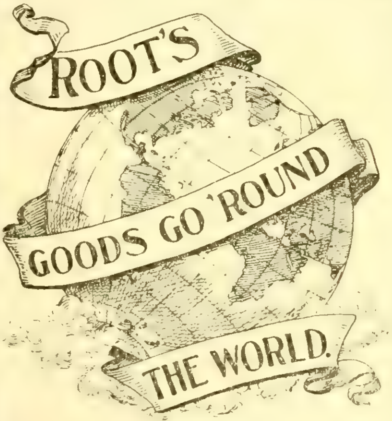

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In all States and Possessions of United States and Provinces of Canada.

Our Catalog for 1905

is now on the press. If you wish a copy at once drop us a postal. It takes some time to print and mail to our list of 250,000 bee-keepers.

THE A. I. ROOT CO.,

MEDINA, OHIO.

BRANCHES:

Chicago, Ill., 144 East Erie Street.
Philadelphia, Pa., 10 Vine Street.
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Syracuse, N. Y., 1635 W. Genesee Street.
Mechanic Falls, Maine.

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San Antonio, Texas, 1322 So. Flores Street.
Washington, D. C., 1100 Maryland Ave., S. W.
Havana, Cuba, Obrapia 14.
Kingston, Jamaica, 115 Water Lane.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange a limited number of choice Homer squab-breeders for honey, or bee-supplies.
HAL OPPERMAN, Pontiac, Ill.

WANTED.—Comb and extracted honey. Describe the kind you have; how put up, with lowest price for cash. L. H. ROBEY, Worthington, W. Va.

WANTED.—Refuse from the wax-extractor, old worn-out combs, or slumgum. State quantity and price.
YOUNG'S BARBER SHOP, Boonville, Mo.

WANTED.—To exchange Lewis eight-frame 1½-story Dovetailed hives, 1904 make, for four-frame Cowan extractor, honey, or offers. CHAS. D. HANDEL,
Hanover, Ill.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—You as a partner to furnish bees, etc. After 27 years' experience I can handle bees on shares on these ranges for half interest.
I. D. ALDERMAN, Rose Hill, N. C.

WANTED.—Quantity lots of gilt-edge, new, white-clover comb honey, plain or tall sections preferred. Also extracted honey in cans in exchange for second-hand cans. B. WALKER, Clyde, Ill.

WANTED—To exchange English chainless bicycle, in good repair, cyclometer, lamp, bell, all tools, Dunlap double-tube tires, for Cowan two-frame extractor, and shallow extracting supers. Full description. Address L. S. RAWLINSON, Muse, Augusta Co., Va.

WANTED.—Parties who intend to change location to come to Central Kansas, Saline County. Salina is a great commercial center; several wholesale houses already established; several colleges. Write for my price and description of real estate. J. DUNCAN,
Immigration Agent Missouri Pacific Ry., Salina, Kans.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—Barnes footpower saw.
H. H. JEPSON, 237 Park St., Medford, Mass.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

FOR SALE.—200 swarms of bees in No. 1 Langstroth hives, etc., residence, honey-houses, and small piece of land. G. F. WILSON,
Soldiers Grove, Crawford Co., Wis.

FOR SALE.—30 colonies of bees, also my home place at a bargain. 1½ acres, part of it good garden land, fronting on Lake Worth on the east, and county rock road on the west; 1½ miles north of West Palm Beach. Good reasons given for selling. Write for particulars.
T. H. McFARLIN, Mangonia, Fla.

FOR SALE.—Brand-new latest model No. 15 Cowan honey-extractor, Root's make, been used only at an exhibition to extract 60 lbs. Will sell same for $10.00; cost $11.50. New Bingham uncapping-knife, 90c. Also clean new extracting wired combs at 10c each; 8-frame unbound zincs 10c each; bee-books, magazines, in fact, whole apiary of 30 hives and fixtures, etc., for sale at your own prices. Write now. FRED'C E. SMITH,
6 Dartmouth St., New Bedford, Mass.

FOR SALE.—A pleasant home in Nelson, Madison Co., New York. 7-room house, with good cellar, good well, and cistern. Barn 26x30 ft., with basement. Chicken-yard. 2¾ acres of land, with over 40 apple-trees of good bearing age, mostly winter fruit. Some pear and plum trees, and grapevines. Running water on place. House and barn in good condition. House within 100 yds. of church and postoffice. Title perfect. Terms, $950; $500 cash, balance first mortgage.
W. H. BIRNEY, Las Animas, Colo.

Our Specialties

Cary Simplicity Hives and Supers, Root and Danz. Hives and Supers; Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season.
32-page Catalog Free.

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The Pump That Pumps
SPRAY PUMPS
Double-acting, Lift, Tank and Spray PUMPS
Store Ladders, Etc.
HAY TOOLS of all kinds. Write for Circulars and Prices.
Myers Stayon Flexible Door Hangers with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.
F. E. MYERS & BRO.
Ashland, • Ohio.

New Star Incubator
at a bargain; also, inch black pipes.
G. ROUTZAHN, Biglerville, Pa.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

During this month (November) I will offer a *Special Discount of 5 per cent for Cash orders*, for goods wanted for next season's use. During December the discount will be 4 per cent. These discounts apply to orders for hives, sections, foundation, etc., but not for honey-packages or shipping-cases, or goods for immediate use. One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer*.

HONEY.

I have on hand a large stock of extracted honey in 60-lb. cans, white-clover or water-white alfalfa. A single can of either at 8½c per pound. Two cans in a box at 8c per pound. Bee-keepers having a demand which exceeds their supply can here avail themselves of an opportunity.

The finest and most accurate goods that the world produces. Prompt shipments and low freight rates. A positive guarantee that every detail shall be entirely satisfactory. We make mistakes, but we always correct them without expense to our customers. This is what you get when you send your orders here.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., INDIANAPOLIS, IND.

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We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published ***The American Bee-Keeper*** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

IT PAYS YOU WELL

To get your bees and queens from the South. All reports go to show that bees and queens shipped from the South (especially those reared by us) give larger yields of honey every year than those that are wintered in the North. Let us begin now to arrange to furnish you all the queens and bees you may need the coming season. We make a specialty of bees in carload lots. One, two, and three frame nuclei and full colonies furnished at all times. Get our prices before you buy elsewhere; we will save you time and money. We are selling agents for more than 300 colonies of bees the coming season, besides our own stock, which is complete.

Untested queens, from now until Feb. 1st, $1.00 each, or $10.00 per dozen. Tested, from $1.25 to $2.00 each. The best breeders, $3.00 each. Should you wish to buy bees and locate in South Texas, write us. We will fit you out in what you want. Our 1905 catalog will be out Dec. 1st, which will describe the six different races of bees we breed. Write for it. **THE BEE & HONEY CO., W. Atchley, Prop., Box 79, Beeville, Bee Co., Tex.**

IT DOESN'T PAY

to keep those poor colonies when a young vigorous queen from the best honey-gathering stock given *now* may make them your *best colonies* next season. We believe we have as good bees as there are for *business.* We rear our queens carefully, rejecting poor cells or virgins; guarantee them good queens and purely mated, or replaced free on notice. Our testimonials will compare favorably with any. One queen, 75 cts.; six for $3.50; 12 for $6.50; select tested, $1.00; six for $5; tested, $1.00; select tested, $1.50; extra select tested, $2.00.

J. B. CASE, Port Orange, Florida.

I. J. Stringham, New York

No. 25 Jars, with burnished tin top and prepared cardboard lining, $5.00 gross. This is quick to fill and NEVER LEAKS. No. 25 jars with porcelain top, $5.25 gross. 1-lb. square jars, with corks, $5.00. Discount on more than one gross.

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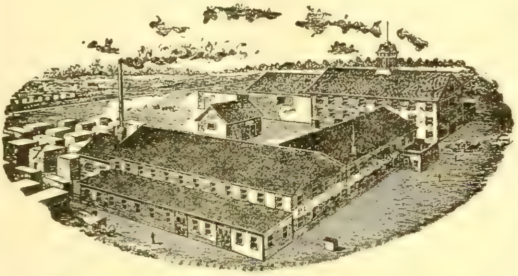
Apiaries, Glen Cove, L. I. Salesroom, 105 Park Place, N. Y.

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.



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Box 60, RED OAK, IOWA.

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We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers.

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Never less than 164 pages. Never less than six cracking good short stories. Each issue contains articles by Opie Read, Stanley Waterloo, Col. Wm. Lightfoot Visscher, Chas. Eugene Banks, Irving Bacheller, and other leading American writers. Beautifully illustrated.

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A carefully edited monthly for the home; owned, edited and published exclusively by women and treating of every interest in the household. Profusely illustrated.

The American Poultry Journal .50
The oldest and best poultry paper in the world. It has improved with the years until it stands in the fore front of its class.

Greens Fruit Grower The leading horticultural magazine of America .50
For Greens Fruit Grower you may substitute Vick's Magazine, Farm Journal, Blooded Stock, Kansas City Star or St. Paul Dispatch.

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This is unquestionably the greatest bargain in good periodical reading matter ever offered. Subscribe today.

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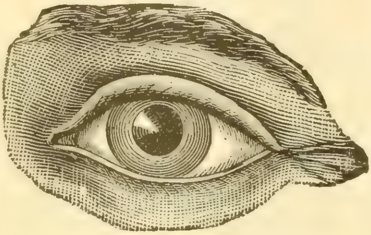
Mr. Bee Man!



am looking for your orders for queens. I please others, why not you? My trade has increased five-fold in the past four years. . . .

64-PAGE CATALOG.

J. M. Jenkins,
Wetumpka, Alabama.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. LAWS, Beeville, Texas.

QUEENS! THE BEST can always be had at 75c each for untested; $4 25 for six; $8 00 per dozen. Tested $1.50 each. Best breeders $5 each. Safe arrival and satisfaction guaranteed. **The JENNIE ATCHLEY CO., Box 18, Beeville, Bee Co., Tex.**

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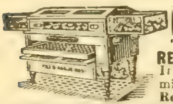
24-lb. no-drip cases, 2-inch glass, $13.00 per 100; 12-lb., $8.00. Crates to hold 8 24-lb. cases, 30c. No. 1 sections, $4.00; No. 2, $3.50. Foundation, smokers, bee-hives, wholesale and retail. Send for list.

W. D. Soper, Route 3, Jackson, Mich.



GOOD RESULTS. To be absolutely sure about it use the **RELIABLE INCUBATORS & BROODERS** If the eggs are right, you can't make a mistake. Just follow instructions—the Reliable will do the rest. **OUR 20TH CENTURY POULTRY BOOK,** mailed for 10c, tells all about it and other things you should know. We have 115 yards of thoroughbred poultry. **RELIABLE INCB. & BRDR. CO., Box B.49 Quincy, Ill.**

YOU'RE LOOKING for just such machines as Miller's **Ideal Incubators** and Brooders. Sent on **30 DAYS TRIAL.** Absolutely automatic. Test it yourself. Big poultry and poultry supply book **Free.**

Made by the Man Who Knows.

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$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

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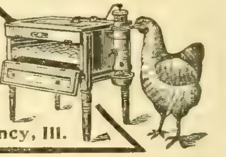

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INCUBATORS AND BROODERS

acknowledged by experts to be the most profitable machines made. Winners of 385 First Prizes. Write for *free* catalog with proof and valuable information for beginners.
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GET A DANDY

THE DANDY BONE CUTTER will double your egg yield. Thousands of poultry raisers say so. It costs less, turns easier, cuts faster and lasts longer than any other. Price $[illegible].00 up. **Sold on 15 Days' Free Trial.** Send for book and special proposition.

STRATTON MF'G. CO.,
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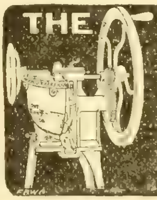
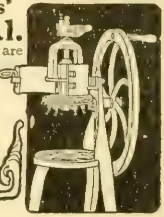


THE HUMPHREY
GREEN BONE and VEGETABLE CUTTER will save half your feed bills and double egg yield. Guaranteed to cut more bone, in less time, with less labor, than any other. Send for Special Trial Offer and handsome catalogue.
HUMPHREY,
Mine St. Factory, Joliet, Ills.

MANN'S BONE CUTTER MAKES HENS PAY

BECAUSE it provides the cheapest and most productive food. Hens can't help laying when fed green bone. We'll send you a **Mann's Latest Model** on **10 Days' Free Trial.** No money until you are satisfied that it cuts easier and faster than any other. If not return at our expense. Isn't this better for you than to pay cash in advance for a machine you never tried? Catalogue free.



F.W. MANN CO.
Box 37, Milford, Mass.

Special Notices by A. I. Root.

THE HANDIEST BAG FOR PICKING APPLES.

Our readers may remember that we have advertised for several seasons a bag to hang around the neck, for holding seed potatoes while using the stick planter. Well, we have just discovered these planting-bags are the nicest thing in the world for picking apples. A light hoop holds the bag open. It is very easily emptied, is out of the way, and you can carry them across either shoulder. Why didn't somebody think of it before?

BATTERY TESTERS, 75 CENTS; POSTPAID BY MAIL, 80 CENTS.

These are a wonderful convenience, not only to those who run automobiles, but where dry batteries are used for running gas-engines or any other purpose. The instrument is small enough to be carried in the vest pocket, and it will at any time indicate what batteries are weak or exhausted, in an instant. Address A. L. Dyke Automobile Supply Co., 2108 Olive St., St. Louis, Mo. The above firm also deals in all accessories and automobile parts and supplies, gas-engines, etc.; also the book "Diseases of a Gasoline Automobile, and How to Cure Them." Send for circulars.

POULTRY FEEDING AND FATTENING.

It would almost seem as if we now had poultry-books enough; but the O. Judd Co. has just gotten out another with the above title. I was especially interested in the long chapter on "Nutrition for Layers," and I do not know but I should consider it worth the price of the book. It discusses all the different kinds of food; and I am glad to say that, instead of advertising and recommending any patent egg food, it gives the opinion that none of them are of any particular benefit in the long run. They may start the hens to laying temporarily, but are not likely to result in more eggs the year round. The book has 160 pages, is profusely illustrated, and nicely bound. The price is 50 cents. We can mail it from this office.

AIR-CUSHION RUBBER STAMPS.

We are prepared to furnish our molding and block stamps with air-cushions at a slight additional cost. This "air-cushion" is a specially made strip of rubber fastened between the handle of stamp and rubber plate. It makes a stamp practically perfect. If struck carelessly or quickly the impression is not spoiled or blurred, as the pressure is equalized, and there is no rebound. The wear and noise of stamping is greatly reduced. It insures a good print on any surface, either uneven or yielding. Price of molding stamps:

1 line not over 3 inches long	15c
2 line not over 3 inches long	25c

Each additional line, 5c extra.

For a block stamp, add 10c extra to above prices; if border is wanted, add 10c more.

FOR AIR-CUSHION, add 10c extra to price of molding stamp, or 15c extra to block.

Write for our rubber-stamp catalog giving prices of different styles and samples.

Convention Notice.

The Pennsylvania State Bee-keepers' Association will hold its fall convention in Harrisburg on Tuesday and Wednesday, Dec. 6 and 7, 1904. An excellent program has been arranged. Many subjects of vital interest will be ably presented. General Manager N. E. France, of N. B. K. A., will be present as well as other prominent bee-keepers. Every bee-keeper in Pennsylvania should interest himself in this meeting.

D. L. WOODS, Sec'y, Muncy, Pa.

SOUTHERN BEE-KEEPERS ORGANIZE.

Through the efforts of Mr. J. J. Wilder and others a number of bee-keepers of Georgia met, Oct. 21, in Macon, to organize for the purpose of promoting and protecting the interests of bee-keeping in Georgia, the organization to be known as the Georgia Bee-keepers' Association.

Mr. J. J. Wilder, of Cordele, Ga., was elected temporary chairman, after which the convention formed itself into a permanent organization. After some discussion it was decided that the organization take the name of "The Southern Bee-keepers' Association," instead of "The Georgia Bee-keepers' Association," thereby giving those living out of the State equal opportunities.

The following officers were elected:

J. J. Wilder, Cordele, Ga., President.
Dr. G. W. Rush, Savannah, Ga., Vice-president.
Judson Heard, Macon, Ga., Secretary and Treasurer.

Resolutions were adopted instructing the Secretary to write the National Bee-keepers' Association for a copy of their by-laws and articles of constitution, and that a committee be subsequently appointed by the President to draft by-laws, etc., a copy to be sent to each member.

The Secretary was instructed to send a copy of the minutes of the association to the different bee-journals, for publication, and also a copy to each member.

It was decided to place the initiation fee at 50 cents for the present, or until the expenses of the organization should necessitate a larger fee.

The next time and place of meeting, it was agreed, should be named by popular vote or by the President.

After some pleasant and instructive discussion on bee-keeping the convention adjourned.

J. HEARD, Sec.

Reduced Prices!

Good for the balance of this season only.

As I desire to unite my nuclei as soon as possible, I will sell Italian queens at the following low prices, until my present supply is exhausted:

Untested queens, **60c** each; six or more, **50c** each.
Select untested, **70c** each; six or more, **60c** each.

Safe arrival and satisfaction guaranteed. Send for circular, and read reports from enthusiastic customers.

J. P. Moore,
Morgan, Pendleton Co., Ky.

TEXAS BEE-KEEPERS!

We have the Southwestern Branch house for the W. T. FALCONER M'F'G CO., and will carry a full line of their famous goods at FACTORY PRICES.

We will handle honey, beeswax, and honey-cans, and shall buy and sell Bees and Queens. OUR AIM is to supply the bee-keeper his wants and buy his products in return. When in need of anything in our line don't forget to give us a trial: we are here for business. Catalogs now ready, and we advise you to order early and get the discounts.

We buy and sell REAL ESTATE, and transact a general REAL-ESTATE BUSINESS. MONEY LOANED on approved properties. We want your business, whether you wish to buy or sell. ANY ONE wishing to buy bees and homes in Texas is especially urged to write us.

THE HYDE BEE-SUPPLY CO.,
H. H. HYDE, M'g'r, **San Antonio, Tex.**

850,000 GRAPE VINES

69 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N.Y.**

Don't get the idea that Paroid, advertised in our colums, is a tar roofing. It is not. Tar roofs sometimes crack and break in freezing weather; Paroid never does.

PAGE & LYON,

NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

We will allow a cash discount of 5 per cent on orders sent in during Nov.

Send for Our FREE New Illustrated Catalog and Price List.

Dittmer's Foundation

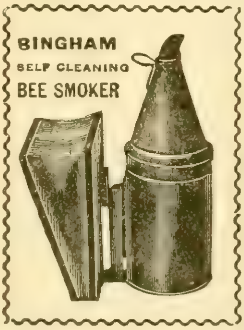
RETAIL AND WHOLESALE

Has an established reputation, because made by a process that produces the *Cleanest and Purest, Richest in Color and Odor, Most Transparent and Toughest,* in fact, the best and most beautiful foundation made. If you have never seen it, don't fail to send for samples.

Working Wax into Foundation for Cash, a Specialty.
Beeswax Always Wanted at Highest Price.
A Full Line of Supplies, Retail and Wholesale.

Catalog and prices with samples free on application.
E. Grainger & Co., Toronto, Ontario, Sole Agents in Canada for Dittmer's Foundation.

GUS. DITTMER, - - - AUGUSTA, WISCONSIN.



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That goes without Puffing—Clean, Durable, and Handy—

Oldest, newest, and embracing all the improvements and inventions made in smokers, send card for circular to

T. F. BINGHAM,
FARWELL, MICH.

Volume XXXII. DECEMBER 1, 1904. Number 23

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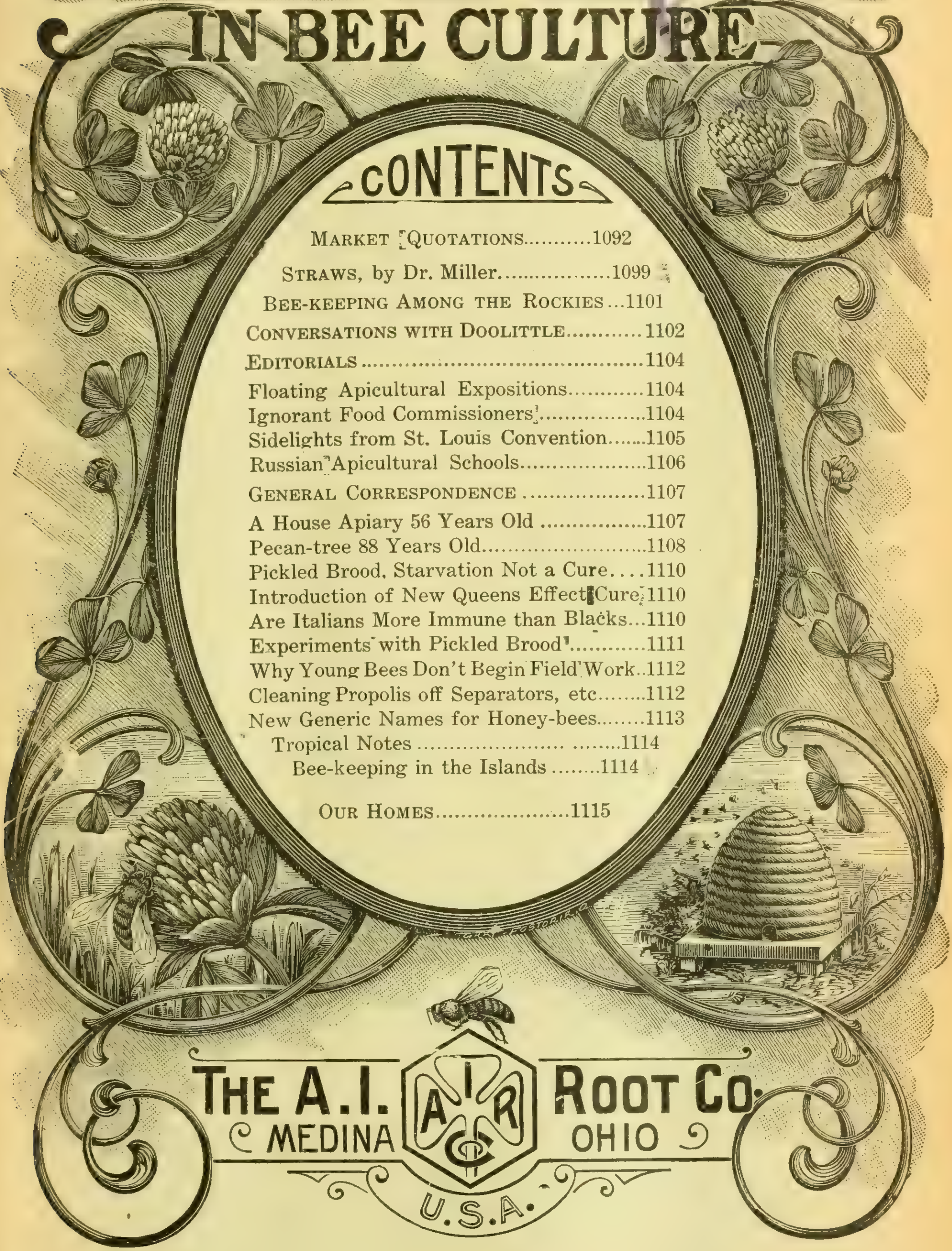
IN BEE CULTURE



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Eastern Edition.

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BEESWAX WANTED AT THE HIGHEST MARKET PRICE.

LEWIS C. & A. G. WOODMAN,
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I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

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I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

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Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

Toronto.—Demand for honey is not very brisk; although it seems to be generally understood that honey is not very plentiful, still there appears to be an abundant supply for the present demand. Everybody expected the price of honey to go up, but so far high prices have not been realized. It was thought that the fruit, flower, and honey show would have stimulated the demand for honey somewhat, but sales were very poor. Quite a lot of the bottled honey at the show was sold to one of the departmental stores, at 8c per pound for the honey, and the glass at cost. The show of honey was excellent, in fact one of the best, if not the best we have ever had in Toronto, and the quality could not be surpassed. Prices: Extracted, 7@8; comb, $1.25 @$2.00 per dozen.
E. Grainger & Co.,
Nov. 23. Toronto, Can.

Milwaukee.—There seems to be an improved condition as touching the market here. The demand is better; and old, as well as new-crop comb, is selling better. Extracted white is also selling quite well, and we can now encourage our friends to ship with good expectations of good results. Barrels of about 350 pounds, and 60-lb. cans sell well, also kegs of about 150 pounds seem to suit. We quote old-crop comb, 10@12; fancy new, 13@15. Extracted in barrels, kegs, and cans, white, 7@7½; dark, 6@7. Beeswax, 25@28.
A. V. Bishop & Co.,
Nov. 17. 119 Buffalo St., Milwaukee, Wis.

Philadelphia.—Honey has been arriving quite freely; but for fancy grades, the demand has been equal to the supply. We would say the market is a little weaker. We quote: Fancy, 15@16; No. 1, 13; amber, 11@12. Extracted, white, 7½; amber, 6@7. Beeswax, 26. We are producers of honey, and do not handle on commission.
Wm. A. Selser,
Nov. 19. 10 Vine St., Philadelphia, Pa.

Detroit.—Demand for honey seems fair, with a fair supply. A No. 1 and fancy bring 13@14; No. 1, 12; dark, 10@10½. Beeswax, 25@26. M. H. Hunt & Son,
Nov. 12. Bell Branch, Mich.

Toledo.—The market on comb honey is somewhat weakened since our last quotations. The receipts are quite heavy for this season of the year, and the demand does not seem to be quite as good as usual. Strictly fancy white comb brings 14@15 in a retail way; A No. 1, 13@14; amber, 12 with little demand. Extracted is sold as follows: white clover in barrels, 6½@6¾; in cans, 7½ @8; amber in barrels, 5¼@5½; in cans, 6@6½. Beeswax, 26@28. Griggs Bros.,
Nov. 18. Toledo, Ohio.

St. Louis.—This market has barely undergone any change in regard to the honey situation, and quote as follows: Fancy white comb honey, 13½@14; A No. 1, 12½@13; No. 1, 10@11. There is no demand for broken or lower grades of comb honey. Choice extracted white clover and Spanish needle in 5-gallon cans, 6½@7; dark and southern honey, 5½@6; southern, in barrels, 5@5½. Beeswax, 28½ per lb.
R. Hartmann & Co.,
Nov. 18. 14 So. Second St., St. Louis, Mo.

Chicago.—There has been considerable trade in comb honey, but not sufficient to keep pace with the receipts. Prices are steady at 14c for fancy white clover; 13c for No. 1; with grades between 1c to 2c less. Extracted white, 6½@7½; amber, 6@7. Beeswax, 28@30 per lb.
R. A. Burnett & Co.,
Nov. 19. 199 South Water St., Chicago, Ill.

Boston.—Recent heavy arrivals together with very low quotations from some other markets have had a tendency to weaken our market. We quote fancy, 15@16; No. 1, 15; No. 2, 14 with ample stocks. Absolutely no call for buckwheat. Strained honey, 6@8.
Blake, Scott & Lee,
Nov. 19. 31 and 33 Commercial St., Boston, Mass.

Kansas City.—The honey market in this section at present is weak, fancy white Colorado comb selling as low as $2.40 per case, and the best grade of white comb from Iowa and Missouri selling at $2.65 per case of 24 sections. We should not be surprised to see the market go lower. Extracted selling slowly.
C. C. Clemons & Co.,
Nov. 19. Kansas City, Mo.

San Francisco.—Honey, new crop comb, per lb., 10@13. Extracted, water white, 7; light amber, 6; dark amber, 5. Beeswax, per lb., 28@29.
Ernest Schaeffle,
Nov. 23. Murphys, Cal.

Cincinnati.—Comb honey is now coming in more freely, and prices if any thing have moderated a little. The sales made and prices obtained were: No. 1 fancy water white, 13@15; No. 2, 12@14. Extracted is sold as follows: white clover, in barrels, 6½; in cans, 7½@8; amber, in barrels, 5¼@5½; in cans, 6@6½. Beeswax, 27.
C. H. W. Weber,
Nov. 22. 2146-8 Central Ave., Cincinnati, O.

For Sale—10,000 pounds choice extracted honey. White clover and amber fall. In barrels, 7c; 60-lb. cans, 7½c. Dadant & Sons, Hamilton, Ill.

For Sale.—2100 pounds fancy comb honey.
Edwin F. Dickson, Kenton, Ohio.

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In No-drip Shipping Cases.
Also AMBER EXTRACTED
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C. H. STORDOCK, Durand, Ill.

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R. A. BURNETT & Co.,
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CHAS. KOEPPEN, Fredericksburg, Va.

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D. E. LHOMMEDIEU, Colo, Story Co., Iowa.

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THE A. I. ROOT Co., Medina. O.

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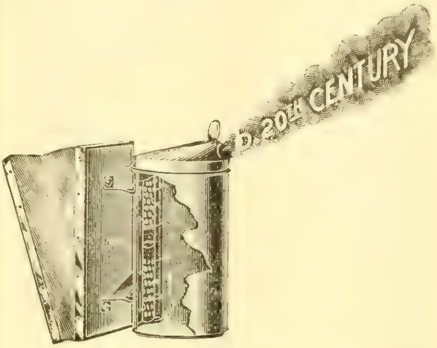

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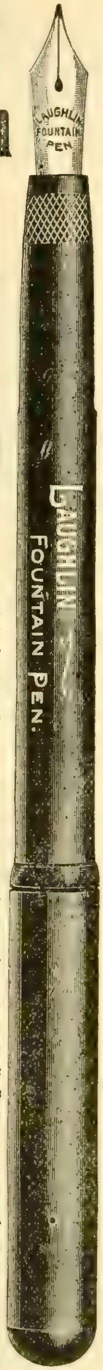

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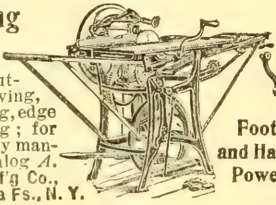

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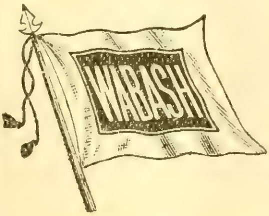

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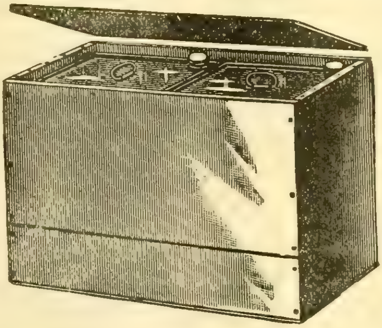

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Stray Straws

By Dr. C. C. Miller.

TO SCRAPE bees thoroughly is not such a very big job, says H. H. Hyde, p. 1068, for one man can easily clean from 25 to 50 colonies a day. I wish my good Texan friend would tell us how much of the bee he scrapes. If he means just the hind legs, he'd have a busy time getting through with 50 colonies in a day; but if the bees are scraped all over, even 25 colonies would be too many.

ILLINOIS bee-keepers, at their State convention, voted unanimously that they wanted their bees taxed. They wisely argued that they couldn't expect favors from the State legislature for the benefit of something that wasn't taxable property. I think there's a better argument even than that—common honesty. We expect the law to protect property in bees as well as in horses; why not tax one as well as the other? [Bees are taxed in this State, and I do not know why they should not be taxed the same as any other property, and be recognized in law as such.—ED.]

YE EDITOR wants to know, page 1056, "whether honey does contain food elements that the bees really need, not found in the sugar syrup." I think that the authorities agree in general with Reidenbach's statement that honey contains from one to three per cent of nitrogenous matter, while sugar contains only a trace. But the question might still be raised whether bees can not get along very well with sugar if they have plenty of pollen available. [In the quotation referred to I did not quite convey the meaning I had in mind. If you put the word *necessary* before the word *food* it will clear up the statement. Of course, I knew that honey contained other food elements than those found in sugar syrup; but the question was whether those other elements were necessary. I am inclined to think they are not, for reports for many years back have shown that sugar syrup was preferable to honey, as a rule.—ED.]

"THAT 'hermetically sealed' cover must be pried ever so carefully if one would avoid that fatal snap as it leaves the hive," says R. Wueste, p. 1069. What sort of climate have you in California, anyhow, friend Wueste, that makes it cold enough for propolis to snap? Up here it snaps only when it's too cold to work with bees. Neither do the bees on the cover offer fight. Just dump the end of the cover on the ground in front of the hive, and the bees scud for the entrance.

LEIPZ. BZTG. says that this year's honey is darker than the honey of other years, the cause being the excessively dry weather that ruled for months. Does dry weather make honey darker here? I think L. L. Andrews says that in his part of California alfalfa honey is amber. Why dark there and so very light in Colorado? Weather, soil, or what? [I have noticed that, in dry years, comb honey looks more water-soaked. I presume it is owing to the fact that honey, when it does come in, comes very slowly, and the bees are a long while in sealing it. I do not know whether dry seasons affect the color of extracted honey or not. We should be pleased to have reports.—ED.]

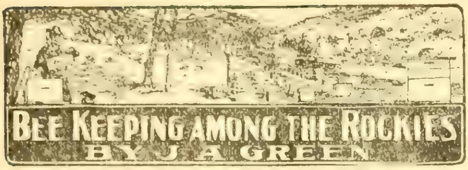
WM. M. WHITNEY, p. 1070, quotes me as saying that bee-keeping would never become as reliable as other agricultural pursuits till the bee-keeper could have some legal rights in the case; and then he says the time will never come when a bee-keeper will have legal protection as an exclusive occupant of a given territory. Well, then, the pursuit will never become very stable and reliable, will it, friend Whitney? You then proceed to say, "no sane person would contend for a moment that an owner would not have a right to cut his basswood timber," alfalfa, etc. Of course not; who ever thought of such a thing? But what has that to do with the case? The question is, don't you think you would feel you were in a more stable business if you could be sure that no other bees would be set down within a certain distance of yours?

"NECTAR gathered by the bees from flowers, and deposited in wax cells," is given as government definition of honey, p. 1063. If I am not mistaken, I saw a few days ago a government document in which honey was defined as obtained from flowers *and other parts of plants*. [There are two or three definitions for honey; but the government document you refer to in the last sentence reads thus: "from flowers and from the exudations of plants." The question is, whether or not honey should not be limited to the nectar of flowers only, gathered and stored by the bees. Chemist Selser, of Philadelphia, believes that nothing else should be recognized as honey. This will simplify the work of the chemist, and prevent the bee-keeper from putting on the market honey-dew honey and other honeys so called, of doubtful source.—ED.]

INOCULATED soil is mentioned, p. 1077, as being offered for sale; but I wish you had told us, friend A. I., at what price. I wonder if there isn't a little bit of humbug somewhere about this offering for sale specific bacteria for each different crop. Please remember that, where any crop has been successfully grown, the proper bacteria are already there. The inoculating matter is needed only for some new plant that you have not already grown. For example, on ground where alfalfa has never been grown the special bacteria are needed. Fortunately, however, the experiment stations have proved that the bacteria of sweet clover are identical with alfalfa bacteria, so land where sweet clover grows well doesn't need any inoculation for alfalfa. The Illinois Experiment Station (other experiment stations likely do the same) furnishes enough infected soil to inoculate an acre of ground for alfalfa at a charge of 50 cents, if I remember correctly. Do the circulars mentioned cut under that price? [The price, doctor, was $2.00 for enough of the stuff, whatever it was, to inoculate an acre of ground; and there was quite a list of plants to be inoculated, including garden vegetables. I pronounced it a humbug at once—that is, when they undertook to send the exact bacteria that would increase a crop of wax beans or any other legume wonderfully, and that each vegetable needed a *different* "concoction." The circular was very ingeniously made up of extracts from reports of different experiment stations to prove that their stuff was the genuine thing; but, of course, no experiment station pretended to indorse *that* particular institution.—A. I. R.]

DR. BURRI, the Swiss bacteriologist, says in *Schweiz. Bztg.* that there are in Switzerland at least two different kinds of bacilli that produce foul brood, and in the treatment regard must be had to the kind of bacilli present. But it is a question whether, under the designation of "foul brood," the Swiss do not include more than we do, for on the same page we are told that it includes "stinking foul brood, non-stinking foul brood, and sour brood." [Possibly the term foul brood in other countries takes in all forms of dead brood that is foul, ropy, or gelatinous. But I think Mr. Cowan, of the *British Bee Journal*, considers the real foul brood as referring to *Bacillus alvei* only; and, if I am correct, that is the understanding of the bacteriologists of this country. There is no doubt at all that there are more than one form of microbe that causes brood to die. The germs that produce black brood are very different from those that produce foul brood, although the York State bacteriologists seem to have made some confusion somewhere by calling black brood foul brood, and foul brood black brood.—ED.]

YOU FELLOWS that don't need to cellar your bees should be thankful you don't have to "rassel" with the troublesome problems of the right time to take bees in. We've had fine fall weather till about the third week of November. Then a few mornings with the thermometer 22 to 25 degrees came. That cold spell made it important that the bees should have another flight before going in. But if I waited for them to fly I might wait till spring. As the darkey said, "Doubtful things mighty onsartin, massa." Nov. 14, Clark began carrying in; but by the time 39 were in, it looked so promising for a warmer time that he stopped. The promise was fulfilled, and there were several summery days, the bees flying briskly. Nov. 19 the last of the bees went in. Since then there has been flying weather but no bees out in it. I'm not grieving over that, except that I wish that first 39 had gone in a week sooner or a day later. [Our bees are still out of doors, Nov. 22. Our season is a little later than yours—probably by two weeks. We do not put them into the cellar much before the first of December, because we have a good many fine flying days up to that time on the average. We are paving in front of the factory, with the result that quite a quantity of dirt was deposited on a low spot in our bee-yard. This necessitated the removal of several hives. As it was not practicable to move them to another portion of the apiary, I told the boys to put them in the bee-cellar for a couple of weeks, then put them in some other location in the yard. This was done; and, notwithstanding the bees had been confined only about two weeks, I noticed that they voided a good deal of liquid fecal matter. While they would have been able to retain this for some time, possibly till next spring, yet the confinement of the two weeks showed that, when released, they would relieve themselves of fecal matter. I therefore think it advisable to put the bees in the cellar as late as possible, and then, wherever the locality will permit, give them one or two midwinter flights on a warm day. It pays well in this locality. Indeed, I do not believe we could have good wintering without these mid-winter flights. —ED.]


BEE KEEPING AMONG THE ROCKIES
BY J. A. GREEN

A prominent dealer in honey and supplies advertises in GLEANINGS "white and yellow alfalfa" seed. Probably he means sweet clover. All the alfalfa I ever saw had a purple blossom.

* * *

Regarding the small nuclei for queen-mating, let it be remembered that, while Mr. Laws deserves credit for first bringing them prominently before the public, he has not claimed to be the originator of the system. C. B. Bankston, I believe, was the one who brought the "Swarthmore" idea into this practical shape and first described the system in print.

* * *

Sweet clover is probably so called because of its sweet smell when in bloom, though it might well be so named because of the sweet smell of the dried plant or because of the amount of nectar it produces. I believe it was either the New Mexico or Arizona experiment station that in one of its bulletins referred to it repeatedly as "sour clover," explaining that it used this term because of the taste of its leaves as compared with alfalfa. It seems to me that this attempt to change the name of such a well-known plant is entirely unwarranted and useless, and can only lead to confusion.

* * *

The statement quoted in the *Review*, that the man who uses a bicycle to go to an out-apiary has done a day's work before he gets there, makes an old century rider smile. Although I keep one or more horses all the while, I prefer to use a bicycle whenever possible. I am bee-inspector for Mesa County, and have made all my inspecting-trips on the wheel. Sometimes for a couple of weeks together I have ridden from fifteen to thirty miles nearly every day, inspecting from 75 to 100 colonies of bees at a trip, and the least tiresome part of the day's work has been that spent on the wheel. I enjoy it more, probably keep in better health for it, and get more work done at less expense for the taxpayers who foot the bills, than if I used a horse.

* * *

Some bee-keepers here, generally newcomers from the East, have tried to winter their bees in cellars. So far as I know, the results have invariably been very unsatisfactory. Colorado has an ideal climate for wintering bees outdoors. No matter how cold it gets at night, and it very seldom gets as cold as in the majority of the Eastern States, the sun generally shines during the day and warms things up so that the bees can move around in their hives and locate themselves properly with regard to their honey supply. Days on which they can fly are frequent. Good colonies, with plenty of honey, almost invariably winter well, no matter how open and dilapidated their hives may be. Some protect their bees by packing in straw or otherwise, but generally the only preparation for winter, if any is made, consists in laying a piece of burlap over the frames, allowing a slight upward ventilation.

* * *

Complaint is frequently made that queens shipped in from a distance do not prove to be good layers. Doubtless their prolificness is often injured by their long trip through the mails. It would be a good thing for the bee-keepers here if some queen-breeder would locate in this part of the West. The shortness of the season, compared with the Southern States, might make it impossible to raise as many queens in a season, but I think there would be a good demand for them, and that more queens would be used here if they could be bought near home. In one respect a breeder would have an advantage over many localities. A short drive from almost any part of this valley would take one out on the desert out of reach of any other bees, so that queens could easily be mated to selected drones.

* * *

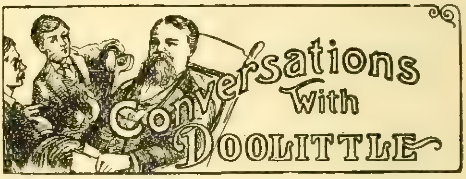
The picture of the Alexander apiary, and the figures relating to it, no doubt seem very impressive to those who are accustomed to only small apiaries at considerable distances from each other. But apparently there are few or no other bees in the neighborhood. Here it is no uncommon thing for that number of colonies to be on practically the same ground, with the range limited on all sides of them. A circle with a radius of a mile and a half, including my apiaries, contains 800 colonies, and for a considerable part of its circumference the circle would touch the desert, on which there is ordinarily no pasturage, while there are bees all around the rest of the circle. At another place a circle with a radius of three-fourths of a mile contained over 700 colonies, with bees nearly as thick on all sides. Another circle with a radius of a mile and a half contained 1100. An apiary within this circle averaged three cases of comb honey to the colony, though that was far better than common. When it comes to considering overstocking, the trouble is that few stop to figure on the number of colonies that already occupy practically the same location.

* * *

Prof. A. J. Cook some time ago in the *American Bee Journal* called the attention of bee-keepers to what he considered good locations in southern California because of the amount of alfalfa grown there. I felt sure that he was mistaken, because I had investigated some of these localities myself and found them unpromising. In a recent article Prof. Cook says he has been criticised by a Ventura County bee-keeper who says that, while alfalfa in certain regions secretes nectar and adds largely to the honey-yield, in other sections, especially near the coast in Ventura County, it seems of no value at all as a honey-plant. Prof. Cook then theorizes that the reason it does not secrete honey in these localities is because of their comparatively cool and moist climates. A hot dry climate, he concludes, is necessary for alfalfa to yield honey; and he feels sure that the southern counties, San Diego and Riverside, must become excellent for honey. While I believe his theory is all right, there are other things to be taken in consideration. I visited a district south of Riverside where a great deal of alfalfa was grown, but concluded it was not a good locality for a bee-keeper. I based this conclusion, though, and the apparent scarcity of bee-keepers, on the fact that the alfalfa was generally cut before it came into bloom, thus giving the bees little chance to gather honey from it. It is undoubtedly true that atmospheric conditions greatly affect nectar secretion. It is my experience here that cool weather decidedly diminishes the yield from alfalfa, and that rain is a detriment. What alfalfa needs to yield honey well is hot dry weather, with plenty of irrigation water. I believe we have had some reports of good honey-yields in Kansas and Nebraska from alfalfa; but it is my opinion that, even if alfalfa can be made to grow well in the States having a moister and cooler climate, it will not be as abundant or reliable a source of honey as in the arid regions with irrigation.

* * *

I wish that people would not act as if they felt their own little corner of the universe, with all its peculiarities, ought to be familiar to all the rest of the world. Now there are Coggshall and some of the rest of them who have been talking for some time about using old phosphate-sacks for smoker fuel; and The A. I. Root Co. is talking of making it up into cartridges to sell to those bee-keepers who think they must buy every thing they use. Most of the bee-keepers in the States I am familiar with never saw a phosphate-sack, and would not know of what material it is composed. I don't myself. I have seen phosphate-sacks in the Southern States, but I do not remember what they were made of. You of the effete East, with your worn-out lands, may be thoroughly familiar with phosphate-sacks, but you have no right to assume that the rest of us are. I suppose that phosphate-sacks are made of jute or hemp, and are like what is commonly known as gunny sacking or burlap. If that is so, you ought to speak of old potato-sacks, then the Colorado ranchman would know what you are talking about. Burlap is one of the materials I find of great service as smoker fuel in my inspecting-trips. In fact, it is hard to beat for that purpose. The smoker fuel almost universally used here is cedar bark taken from fence-posts. A great many do not seem to know that any thing else can be used in a smoker, and I have gone into apiaries fairly littered with excellent smoker fuel in the shape of old burlap, cotton rags, chips, etc., where the owner went to considerable trouble to bring me some cedar bark. This bark is first-rate fuel for a short job, but it makes so much ash that the smoker soon gets choked up, and must be cleaned out frequently. Away from home I use almost any thing that will burn, and nothing comes amiss. At home I prefer planer shavings, which are easily procured, cost almost nothing, and are easily handled. If they are inclined to blow into the nozzle of the smoker, I put on top of the charge of shavings a piece of burlap, a few leaves, a handful of weeds, or something of the kind. To light the smoker I use a piece of cotton rag soaked in saltpeter water, as advised by Dr. Miller.



MANY COLONIES OR GOOD MANIPULATION—WHICH THE BETTER?

"Say, Doolittle, have you seen that claim being made in some of the bee-papers, that success in bee-keeping lies along the line of keeping a whole lot of colonies, and visiting them only three or four times a year?"

"Yes, I read mostly what was said along this line during the past year. Do you indorse this idea?"

"Well, I hardly know what to think, and so came over to have a talk with you on the subject. If I adopt that mode of procedure I must make a lot of hives this winter, so it will be necessary for me to decide soon. Then, as lumber is high now, the cost will be considerable for new hives, and this made me hesitate."

"I am of the opinion that your hesitation is well, for there are elements entering into this matter that some seem not to see."

"What do you allude to?"

"I noticed that one of the advocates of this keeping a large number of colonies in one place, so that the labor part of keeping bees might be eliminated (which was loudly endorsed by the editor of one of our papers), told us very soon after, I think in the next number, how he fed his whole apiary of some 500 to 700 colonies during the spring so that they might be in shape for the flow of honey from white clover. And, strange to say, the editor seemed to indorse this feeding part; while, at the same time, manipulation along the line of spreading the brood, etc., was thought to be unworthy of the thoughts of those who would make the greatest success in our pursuit."

"But you do not consider spring feeding as labor thrown away, do you?"

"That was not the point at issue. The contention was the keeping of more colonies, instead of spending so much time in manipulation; and if I know any thing of bee-keeping there is nothing that requires more labor on the part of the apiarist than the feeding of bees during the spring of the year, where success is to be obtained by such feeding. And to carry out properly the feeding of from 500 to 700 colonies of bees is something which would almost stagger the man who sees only fun in all the work in the apiary."

"I see now, for I know that, when feeding is once begun, it must be continued till the flowers begin to yield nectar, or there will be little results accruing from the matter."

"That is right; and, in addition to all of this labor, comes the cost of the feed. And the strange thing is that neither of these counts as any thing to the one who sees nothing but 'labor and vexation of spirit' in the matter of manipulation along other lines which, as a rule, give better results than does spring feeding."

"I see that 'Deacon Hardscrabble' thinks that much of the feed given during the spring finds its way into the surplus. What do you think of that?"

"That depends upon the amount fed just prior to the opening of the honey harvest. If the feeding is heavy at that time, and the hive is not well filled with brood, some of the feed may go into the sections together with that obtained from the fields. But bee-keepers, as a rule, are made on the plan of feeding as little as possible consistent with good results, owing to the expense of the feed. But I have no fight along this line, nor along the line of spring feeding to get the colonies in proper condition for the harvest. My contention is against the advocating of any plan that tends to a neglect of the bees, as does the advocating of many colonies with little manipulation; while at the same time it appears that such advocates spend more labor at feeding, etc., than is required in building up colonies ready for the harvest, in other ways. And, greatest of all, this advocating of multitudes of colonies with little or no labor tends to beget in the *beginner* a slip-shod method which generally results in his losing all he put in the business, in a few years after he enters the ranks of apiculture."

"Then you think as good results can be secured with the same amount of labor by the man who keeps 100 colonies of bees as could be done were he to spend the same labor on 200?"

"That is my thought; and any careful reader of the bee-papers during the past can come to no other conclusion, for reports favor the former rather than the latter. Don't misunderstand me. If any man has the ability to care for 100, 200, 1000, or even 2000 properly, and can hire competent labor to help him manage the thousands, he will make a success in the matter. But the putting into the field of 200 colonies of bees, where a man has capacity for only 100, will not make success, even though the 'trend' of some would have it so appear. A man can secure much better results in properly caring for 100 than can be done with 200 colonies worked (?) on the let-alone plan of visiting the apiary three or four times a year."

"What do you base this assertion on?"

"The experience and observation of the past. Thirty-five years of bee-keeping life tells me that this is not mere fancy, but facts which the success of the two plans, in the hands of the *average* person, proves. If you have any doubts along this line, just try the two plans side by side till you are convinced. With the low prices of honey (as compared with the prices of many other things), seems to have come the thought of partially or wholly going back to the old idea that bees work for nothing and board themselves; so that many bee-keepers seem to think all that should be required of them may be summed up in the old saying of hold the dish to catch the porridge."

"Then you think that this advocating of more colonies and less work tends toward a lowering of the standard of our more advanced apiculture?"

"I do; and not only this, but an education that is not profitable. To the enthusiastic bee-keeper there is no fun in such a plan as this. Pleasure comes only through a love of our pursuit; and if we love it we are always interested enough to make the labor *fun* while we are doing it. Did any one ever have any fun going fishing and get it by swinging in a hammock in the shade? Did any one ever enjoy himself in the fox-chase while sitting beside the sitting-room fire? The love of fishing and of the fox-chase is greater than that for hammock and fire, and so the love for work with the bees will make the same greater fun than a life of ease to the one who is to succeed in our pursuit."

[I am a little at a loss to know to whom Mr. Doolittle alludes in his reference to the editor who "loudly endorsed" the idea of keeping a large number of colonies on one place, and then afterward in his next number commended the feeding of the same in the spring. It would be much better if our correspondents would refer to the individual by name, and give exact page or pages of a given bee journal where such and such ideas were discussed. No offense could possibly be taken in any case, for every one has a right to his opinion. Perhaps some might say, "Do not put the shoe on if it does not fit." I am not putting it on, because I do not think I have given any general indorsement to a large uumber of colonies in one locality, as mentioned in the paragraph above by Mr. Doolittle. Mr. E. W. Alexander, in our issue for Nov. 1, page 1019, did tell about keeping an extraordinarily large number of colonies in one locality. In my footnote referring to the matter I said, "I doubt if there are many localities in the United States that will support so many bees without cutting the average per colony down to an unprofitable basis." While this does not at all detract from any statement Mr. Alexander may have made so far as it relates to his locality, the opinion expressed is most decidedly that a large number of bees in one locality is, as a general thing, unprofitable, and therefore not to be advised. I have run through hastily some of the other bee journals, but do not find such indorsement as Mr. Doolittle speaks of, and therefore I am all curiosity to know what editor is commending such a proposition.

I have written a good deal about bees, and perhaps on some page I may have made a misstatement or a statement that is capable of a misconstruction. If so I should be glad to have the same pointed out.

I have always believed, and I think our columns will bear me out, that not over 100 colonies as a rule can be kept in one locality, and I have often advised not over 50 or 60. I know of only two localities that will support 500 colonies all in one yard in the United States. One is in California, and the other is in New York; and even these would not begin to do this were it not for expert management.—ED.]

Editorial
By E.R. Root.

OWING to some unexpected advertising coming in late we have been obliged to leave out our usual installment of Heads of Grain. We are preparing to enlarge our journal; and possibly in our next issue, certainly in the one following, we will give a great deal of extra matter to make up, at which time an unusual amount of questions and answers will be given.

CONVENTION DATES.

IT would be a good thing if those who have to do with fixing dates for conventions would arrange them so they will not conflict with some other convention date, so that one or more speakers can attend them all. For example, the Illinois State convention conflicted with the one at Toronto, Canada. Editor York had intended to go to both, but of course could go to only one. I am arranging to go to Chicago to attend the Northwestern, Nov. 30, and go to Cincinnati Dec. 2, then am compelled to retrace my steps, and go back to Chicago to get to Minneapolis, the 7th and 8th, making double mileage. If the matter were put in the hands say of the General Manager of the National, he might suggest a set of dates so that he himself and the editors of all the bee-papers could attend all the conventions, and at the same get the the mileage down to a minimum. Such an arrangement would often make it possible for an association to get an outside speaker when it could not otherwise.

GIVING BEES MID-WINTER FLIGHTS.

I BELIEVE it was decided years ago that it did not pay to give bees in the cellar a mid-winter flight; that the slight gain resulting from such flight would not compensate for the labor involved. Of course, a good deal depends on the locality, the kind of cellar, the temperature that it is possible to maintain in it, irrespective of outside weather, and, in general, the winter itself. But I am satisfied that, in our own locality, one and possibly two mid-winter flights when the weather permits not only pays but pays well. In half a day's time two men have taken out of our cellar 200 colonies, allowed them to fly, and put them back. The beneficial effects were immediately noticed. While the bees prior to removal were uneasy, they became perfectly quiet after being put back, and continued so for several weeks after. It may be that in some cellars, in some localities, with a uniform temperature, the bees can be kept so quiet, so dormant (bordering almost on a stage of hibernation), that the mid-winter flight is not necessary.

FLOATING APICULTURAL EXPOSITIONS IN RUSSIA.

I DESIRE to call special attention to that part of Mr. Titoff's report on Russian bee-keeping referring to the floating expositions illustrative of apicultural progress in Russia. I am of the opinion that something of the kind could be instituted in this country, and perhaps Uncle Sam some day will foster such an enterprise. If a good big barge could be chartered to go down the Mississippi with a floating apiary, extractor, extracting-house, and comb-honey equipment, with competent men in charge to illustrate each process, it would have a most wonderful educational effect. It might stop at all the principal places; and if a similar barge were floated on the Ohio River, another on the Columbia for the Northwest, every one would have an opportunity at very little cost for railway fare to see the latest methods actually put into operation.

IGNORANT FOOD COMMISSIONERS.

AT the St. Louis convention Prof. E. N. Eaton paid his respects to the ignorant or incompetent food commissioners who every once in a while will break loose in the papers about some impossible adulterations, alarming the public with a story that will travel from ocean to ocean. It is high time that some one should call down some of these people for the senseless blunders they are making in the name of the great commonwealths they are supposed to represent,

For example, one of our food commissioners, a strenuous official who was doing his duty in the enforcement of law, in some correspondence kept continually referring to honey of our "manufacture." At first we were very indignant, and resented the insinuation that we *manufactured* honey; but later correspondence showed that what he had in mind by the term our "manufacture" was honey of our *production*—that is, honey gathered by our bees from flowers, and stored in the combs. If ever there was a "red rag before a bull" it is the term "manufacture" when applied to a bee-keeper's production.

But here was a food commissioner, who ought to have known better, who was using that term indiscriminately in his correspondence and in his public references; and do you wonder that the "manufactured" comb-honey lie keeps cropping out in the press? When food commissioners talk about "manufactured honey," the reporter, who "interviews" him, of course has to make up a story to fit, with the result that the whole bee-keeping industry is damaged by the very people, the pure-food commissioners, who are supposed to be its friends.

I suppose that our political conditions, necessitating a change of administration every once in a while, are responsible for this. An official no more than gets the run of things so that he understands the business in all its details than he is removed and somebody else is put in his place who has to learn the whole thing over again, in the mean time making many blunders until he becomes familiar with all the different kinds of food and food adulterations.

SIDELIGHTS FROM THE ST. LOUIS CONVENTION; BEE-KEEPING IN RUSSIA.

It will be remembered that Mr. Abram Titoff, a Russian apicultural expert, came to this country commissioned by his government to study American bee-keeping in all its varied phases. He first came to The A. I. Root Company's plant, and accepted a position with us as employee in our wax-working department. During this time he familiarized himself with the Weed process of foundation-making in every detail. Later on he worked in other departments. When warm weather came on he went out into the bee-yard, and became one of our most efficient apiarists. He proved to be not only a skillful bee-keeper but a tremendous worker. After having familiarized himself with all the different methods of queen-rearing known to the business in this country he desired to work with and for some prominent honey-producer in extracting honey. As the season last summer was somewhat backward I could think of no one but Mr. E. W. Alexander, of Delanson, N. Y., one of the most extensive bee-keepers in the world, who was having a good crop; for be it remembered last year was a poor one in many localities. To him Mr. Titoff went with our warmest endorsement and recommendation. He come back after two months' work in the height of the season, stopped a few days, and then went on to the big national convention at St. Louis, where he gave a very interesting and exhaustive paper on Russian bee-keeping.

Little has been known about bees in the greatest country of all Europe; and great was our surprise to know of the possibilities of bee-keeping in that land. Mr. Titoff started out by saying that the Americans had often expressed their surprise to him that bee-keeping should be at all practicable in his country; that there seemed to be a general opinion that it was a land of snow, ice, arctic dogs, and fur coats; that Siberia with its convicts was a land of eternal snow, cold, darkness, and horrors. This was a great myth, as he would try to show. The conditions for bee-keeping in Russia were fully as favorable, he thought, as in the United States; and the demand for honey and beeswax was and would be greater, for the reason that the Greek Church in celebrating her religious rites forbids meat being eaten during the fast, and that during such times great quantities of honey were eaten; also that wax was used in immense quantities for wax candles in the church. He did not believe there was any country in the world where the possibilities for the sale of honey and the development of apiculture could be greater than in his own fatherland.

ABRAM TITOFF.

Up to the 17th century bees had never been cultivated, and so honey, if secured at all, was, as one might say, the product of the chase. This one fact went to show that, *because* bees could thrive in a wild state all over the country, they could certainly do well under intelligent cultivation.

The early history of Russian bee-keeping was about the same as the history of all European countries. In the beginning of the 19th century there was a general awakening on the subject. One of the first to give an impetus to it was Peter I. Prokopovitch, who, in 1828, established a special school of apiculture, and for 22 years he carried on this work, graduating 596 students.

Another energetic personality was Alexander M. Butleroff, who took the liveliest interest in every thing pertaining to bee-keeping. He wrote several handbooks on apiculture, which for years formed the text-books of the majority of the Russian apiarists. He founded the Russian *Journal of Apiculture*, and established a model apiary at the All-Russian Exhibition at Moscow. He was instrumental in formulating the scheme for a floating apicultural exposition, which was mounted on a barge, sailing for thirty days on the river Moscowa, making ten stops to acquaint the people with scientific apiculture. This floating exposition was visited by over 60,000 people. A similar exposition on the Oka River a few years later was also planned and carried into effect.

In this respect I desire to add, by way of parenthesis, that Russia has gone away ahead of any other country; and the scheme of teaching apiculture or any other industry to its people by means of a floating exposition whereby daily demonstrations could be made is not only novel, but something that is deserving of the emulation of other countries. In the United States we have great expositions, but the people have to go hundreds and even thousands of miles to see them. The result is that millions of poor never have an opportunity of having their eyes opened to the wonderful possibilities of latter-day science and progress. But Russia makes it possible for every one to see—in other words, she takes "the mountain to Mahomet."

RUSSIAN APICULTURAL SCHOOLS.

But this was not all. An exposition for apiculture was held in Moscow in 1890. A special school for the study of bees was inaugurated in 1884. In 1896 there was established at St. Petersburg The First Society of Russian Apiculturists, several branches of it being opened in various parts of the country. This organization started a monthly magazine, arranged for exhibitions, conventions of apiarists, apiaries for instruction, and courses in apiculture for teachers in the people's schools. In imitation of this organization new societies were established, of which there were 38 with eight divisions, with the promise of several more in the near future. Apiculture, including both theory and practice, was taught in 80 agricultural schools, the teachers attending to the culture of them. In many provinces the Zemstvos (an organization consisting of elective representatives of the several classes of population) have been active and energetic in the matter of elevating apiculture, inviting special experts for giving practical demonstrations, of which Mr. Abram Titoff was one before coming to this country.

In this way apiculture has progressed in Russia until there are now nine journals devoted to the pursuit. Of these, eight are in the Russian language. There are many translations from foreign languages, of such notable works as Dadant's Langstroth, Dzierzon, Berlepsch, Bertrand, Cowan, Cook, Maeterlinck, de Layens, and Dubini. Russia began to borrow largely from other countries of Europe; but it was not until 1892 that Russian bee-keepers knew very much about the methods employed in the United States. At that time a new journal, called the *Messenger of Foreign Apicultural Literature*, was edited by Mr. Kondratyeff. He traveled abroad every summer, going to Germany, France, Austria, Italy, and Switzerland. He became acquainted with the celebrated Swiss apiarist Mr. Ed. Bertrand, who frequently described American apicultural methods in his own journal. Mr. Bertrand was always a devoted follower of the late Charles Dadant, of this country. The result was that he enthused his Russian friend, Mr. Kondratyeff, with the successful methods employed by the Dadants, until the name "Dadant" in Russian bee-keeping is synonymous with progress and the frame hive. So enthusiastic over American bee-keeping did Mr. K. become that he familiarized all Russia with the names of Langstroth. Dadant, Root, Miller, Benton, Doolittle, Pratt, Alley, and others. All that could be applied to Russian conditions was adopted. The A B C of Bee Culture was quoted in the columns of Mr. Kondratyeff's paper. The result of this warm championship of America is that half of all the Russian bee-hives with frames are of the American Dadant style.

There are over 300,000 persons engaged in bee culture in European Russia to-day, and 5,000,000 hives of bees, comprising all of Russia and her possessions. This would make a total valuation of $12,000,000.

The Russians have adopted a rather novel form of selling comb honey. Beautiful tin boxes, lithographed in colors, are made of various sizes. Great cards of honey are produced in extracting-frames, and from these are sliced out chunks just large enough to go inside of the tin box. These are put out under the name of "Exquisite," selling at the fancy price of 25 and 30 cents each. But of these I shall have more to say later on, for illustrations are now in progress.

It is my opinion that, notwithstanding Russia has learned much of America, there is much for us to learn from Russia. Mr. Abram Titoff expects to go back to his own country after visiting other lands, and introduce modern methods, and possibly establish a factory for manufacturing bee-keepers' supplies—something that is urgently needed in Russia. If he does, he will take back with him American machinery, and probably to a very great extent American methods.

Mr. Titoff's paper, while long, was listened to with interest; and at its conclusion a hearty vote of thanks was tendered to him and his government.

A HOUSE APIARY 56 YEARS OLD

In Good State of Preservation; a Pecan-tree 88 Years Old; a Grove of Catalpas; an Interesting Article.

BY FRANK M'GLADE.

The farm on which these pictures were made is in Warren Co., three miles east of Lebanon, O., and is owned by Edmond Wood. It was entered by his grandfather, who came from New Jersey in 1804, and has been in the family 100 years. Jerry Wood, son of the elder Mr. Wood, and father of the present owner, owned the farm after his father's death, and died there a few years ago. He was the bee-keeper, and built the house in 1848—56 years ago. It was built of the finest quality of oak timber, and cost $700, without any furniture. It is 70 feet long, 9 feet wide, and 10 feet high. A hall 2½ feet wide runs the length of the building, in the center; the posts are 3 inches square, and carefully mortised. There are 4 rows of these posts, just far enough apart to receive and allow the hives to hang freely between them. Strips were fastened on the posts, and strips on the sides of the hives; then the hive was slipped in from the hall inside, and swung or hung on the cleats.

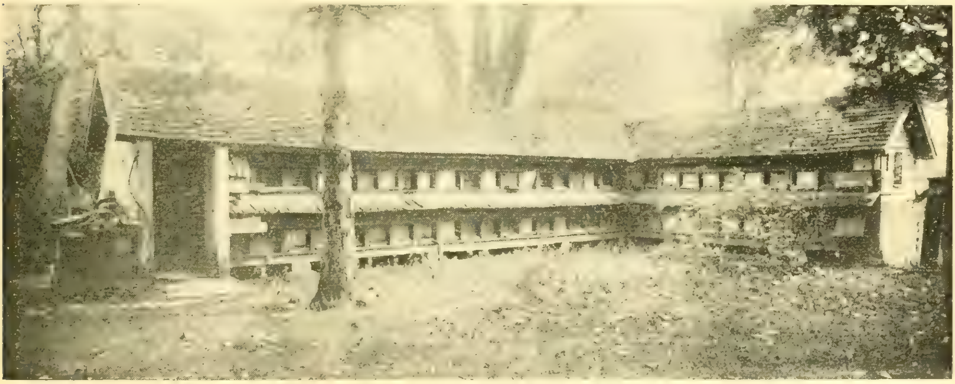


FIG. 1.—WEST SIDE OF THE BEE-HOUSE.

The house holds about 150 hives, and was built for the Wick patent hive. Mr. Wood bought the right in 1840, and had over 300 of them made and in use at one time. There were no frames about it. The honey was stored above the brood-chamber, in boxes. Two doors in the rear of each hive opened into the hall, and allowed of handling. Some years they got 4000 lbs. of surplus honey. The whole thing, however, proved unsatisfactory, and the bees were all changed to the Langstroth hive, and the hives are hanging there to-day just as they were left by the owner, not more than a dozen having bees in them.

Fig. 1 shows the west side of the bee-house, with the only door in the north end.

Fig. 2 shows the east side, with a hive in front. You can see a cleat on the side. The bottom is loose, and held by 4 wire hooks. The present owner, who kindly showed us the "fixin's" and gave us the information, is standing behind the hive. This picture was made to show that tree, a southern pecan, planted there in 1816, and which is 88 years old. It is 7 feet in diameter, over 75 feet high, and not a sign of a dead branch on it. It bears fruit every year. The 4 stakes you see leaning against it are the posts of a New Jersey bedstead. On the right you see a few of the Langstroth hives, most of them empty, as Mr. Wood takes more to farming than he does to bees.

Fig. 3 is a sectional view at close range.

Fig. 4 is a view of an orchard of catalpa-trees on the place. There are 5 acres. The trees are set exactly in straight rows, about 12 feet apart each way. There are about 700 of them set out 15 years ago; are over 30 feet high, and 9 inches in diameter. About half of them are Japan catalpas; the rest are American. Those in the foreground are the Japan. If you look closely toward the north side you can see the difference, the common kind being smaller, crookeder, and more sprawly. Mr. Wood said the flowers furnished much pasture for bees; and after the bloom had fallen they continued to work in the trees a long time.

It would be well worth any man's time to go and see these things, and many more of which I will not write. The farm is an up-to-date one, and shows that its former owners were men of extraordinary mental ability as well as executive.

That large tree stands there as a guard to watch over the things until they return; but they are gone, to return no more. Silence reigns.

This bee-house has a wonderful fascination for me that words fail to describe and only a bee-keeper can know. As I gaze upon it my mind goes back through the fleeting years, and I see Mr. Wood, in the strong vigor of manhood, fashioning it with his own hands to suit his own fancies. What joy and pleasure he had in anticipation of what was to come, as it began to dawn upon him what could be done with bees, as the great book of nature opened to him as he turned leaf by leaf, each one revealing some new thing, and leading him further into the great mysterious field of knowledge that it is the lot of only a few to explore! I see him put in the hives. They fit; then the bees; they fit too. Then comes the "good old summer time," a crop of white clover, loaded with nectar, honey coming in until all those boxes are full of great white slabs of honey. It was long before the days of the extractor, or sections. As he seats himself after dinner in the shade out in the yard, he sees them come and go; or when the day is ended, the evening shades gather, and he seats himself to rest and muse, under the magic influence of the great hum which came from all those hives. That sound has a lulling effect; he hears conversation in the hives; hears them telling of the events of the day, how hard they work, how many trips this one made, one telling of how he made a mistake and got in the wrong hive—heard him telling how the hive was just the same inside as ours; heard—when "ma" came to the door, and he heard "Pa! are you going to sit out there all night? come in and go to bed. Do you know it is after 10 o'clock?"

Then come the years of failure, when the great God of the universe dries up the secret springs of the flowers; their paps are empty; the bees go not to the fields as in other years, but stay at home and behave in a way that tells him that even they are fearful of and obedient unto Him who made them and provides for them.

And so we come on down through the 60's, with their war prices for honey; the 70's

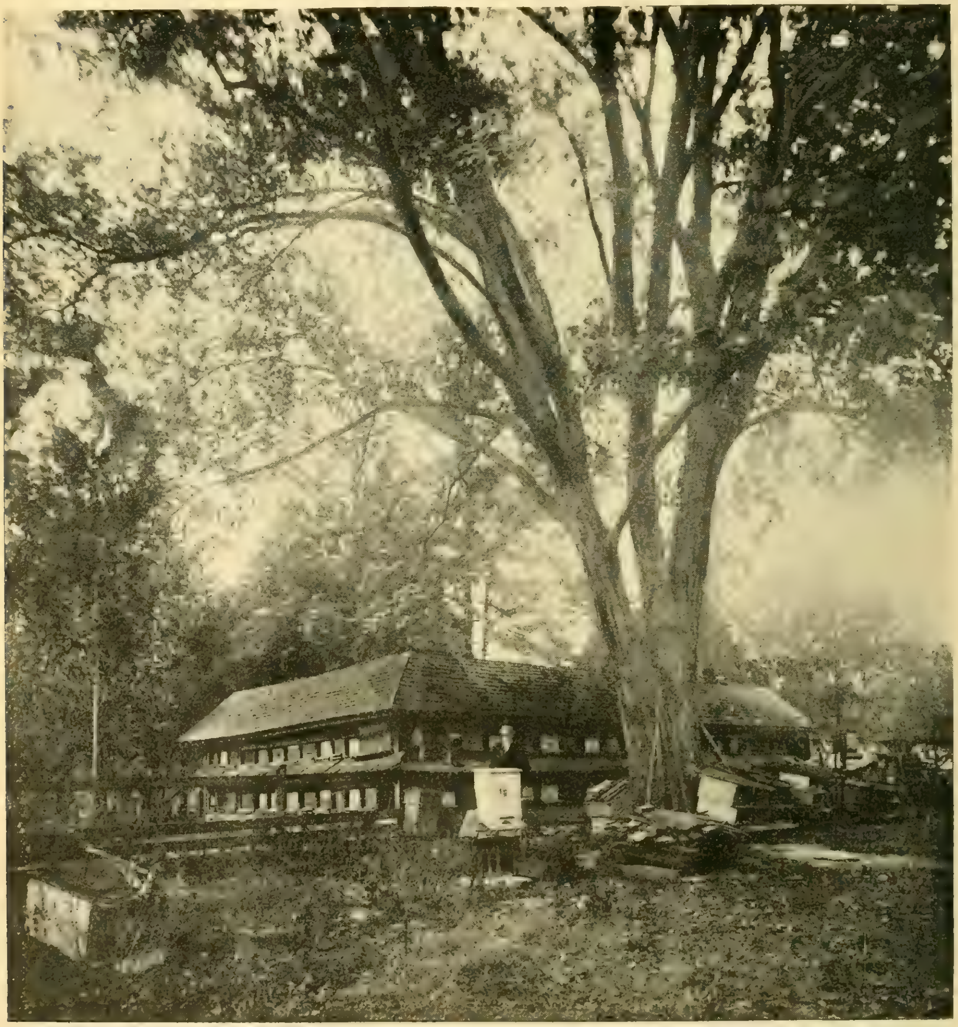


FIG. 2.—EAST SIDE OF THE HOUSE; PECAN-TREE 88 YEARS OLD.

come, and he begins to hear of A. I. Root, Medina, O.; of the extractor; sends for one; hears of foundation; sends for it, hears of GLEANINGS; sends for it, and, lo! a new realm opens before him. But the march of time is far along with him, as seen in the faltering step and dimmed eye. A lack of interest shows itself in the yard. He ceases to be seen, and they carry him away and lay him down in peace.

But the tree is left—left alone. They were young together, much in each other's company; used to each other's ways; in its loneliness the winter winds moan through its branches, the summer breezes sigh as they pass through it, as though its great heart were breaking because its companion came not, and yet it rears its stately head like some mighty sentinel guarding a sacred trust; spreads its great arms in protection and shelter; and as the years roll by, and the seasons come and go, it stands there, defy-

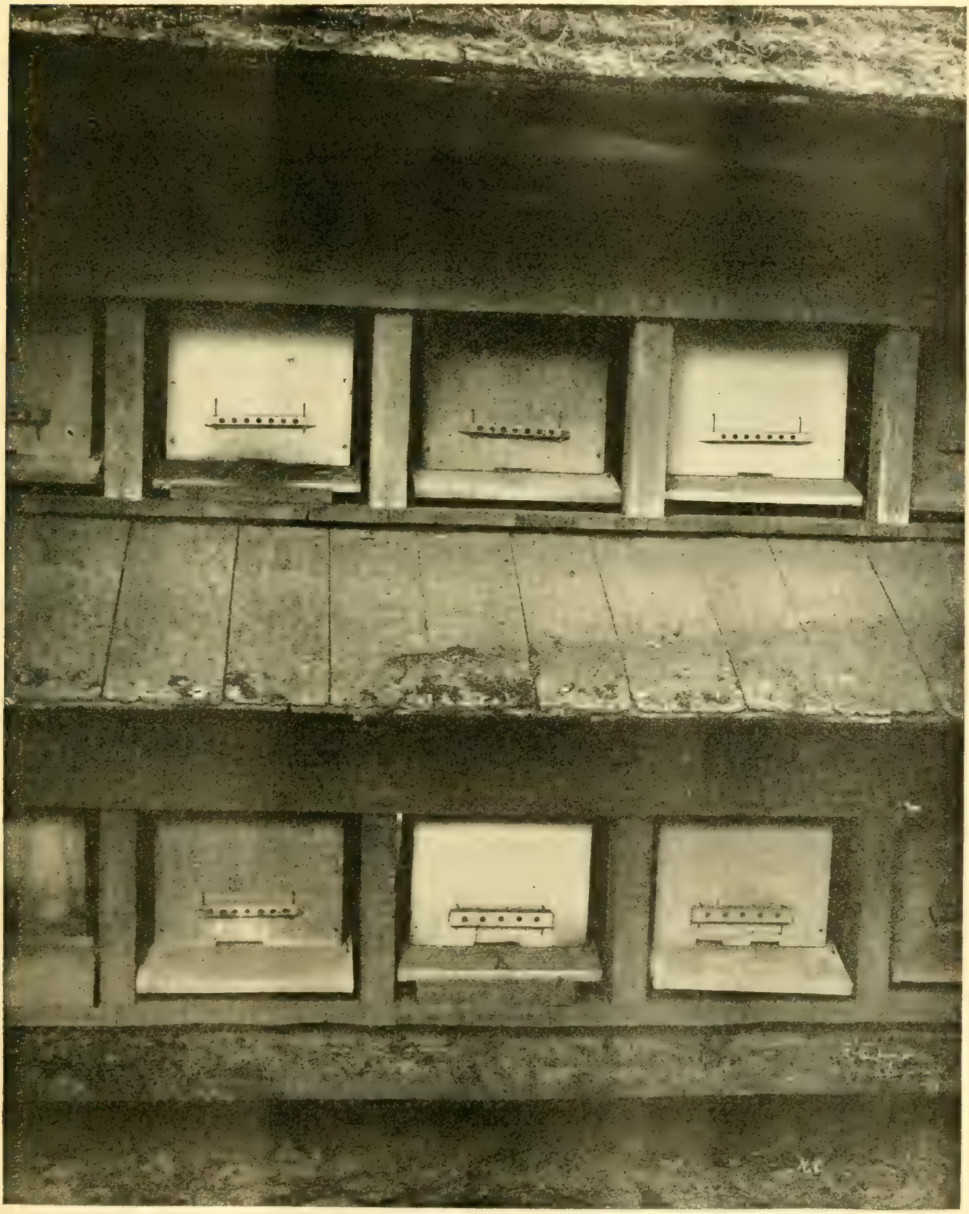


FIG. 3.—VIEW OF BEE-HIVES IN THE HOUSE AT CLOSE RANGE

ing the blasts of winter or the storms of summer, ever intent on the one thing, guarding that house, watching out toward the north for his coming; but he will come no more. Jerry Wood is gone from the farm—gone from the neighborhood; and as I turn to finish packing my last hive for winter I realize that I too shall go away some day, and then "*Whose shall these things be?*"

Pataskala, Ohio.

PICKLED BROOD.

Starvation Plan Not a Cure; how the Introduction of New Queens does Effect a Cure; are Italians More Immune to the Disease than Blacks?

BY C. F. BENDER.

There has been a great deal written on the diseases of bees, especially "pickled brood," by those who have had only a limited experience. Having succeeded in getting rid of the disease for a time, they suppose the cure to be permanent, and proceed to describe their success in the bee-journals. Indeed, I think that I was guilty of something very much like that myself. But two years' study of the disease, and the conditions producing it, has finally brought a solution of the trouble, which seems to me to be the only true one. It has been given a rather severe test this summer, and has never failed so far.

I am pretty sure the disease was generated in my own apiary. The first year I could find no cases in the neighborhood outside my own yard, and I had received no bees from abroad which could have introduced it. I had a lot of moldy combs that spring, and about the 10th of May these were distributed among the weaker colonies which were needing room. These combs had all been soaked in the same vessel in the attempt to remove the old pollen; the colonies which received them took the disease without exception.

I sent samples to Dr. Howard, who pronounced the trouble to be pickled brood in a very malignant form, as I had already decided for myself. Every one assured me it was not serious; that it would disappear of itself, even if left entirely alone. A few cases did finally get well without treatment, but there was another cause for that, as will be noticed later on. In general, matters grew rapidly worse, so that by June 15 I had thirty affected colonies, about a dozen of them with little or no healthy brood in the hive. In the worst ones the old bees disappeared rapidly also, and they were soon reduced to mere nuclei.

I first tried feeding medicated syrup, and the treated ones grew much better while the feeding lasted, but no longer. The second experiment was shaking them on to clean combs which had been thoroughly fumigated with formaldehyde. This, like the other, seemed to work all right at first; but the disease reappeared sooner or later in every colony so treated, and at the same time continued to spread in the rest of the apiary. It seemed to me that heroic measures were in order; so I proceeded to shake every colony in the yard on foundation, starved them three days, and then fed them sugar syrup until the combs were built out. The honey-flow came on about this time, and for the next six weeks every thing was fair and lovely. I had burned the hives out with a paint-burner, melted up the old combs, burned the frames, fumigated the honey-house, and, lastly, destroyed my smoker,

FIG. 4.—A GROVE OF JAPAN AND AMERICAN CATALPA-TREES.

veil, and bee-suit. Every stand of bees within two miles had been examined and found to be healthy, so there seemed no chance for reinfection.

Well, when the honey-flow was over they took it again. Thirty out of the sixty-two hives showed dead brood inside of three months—not so much as before the shaking, but enough to make them decidedly weak before winter came on. The winter was very severe, and the losses everywhere were heavy. My own loss was just 50 per cent, including the greater part of the diseased ones. May 1, 1904, I had thirty stands of bees left, mostly diseased nuclei. There were five strong and healthy colonies in the lot, all pure Italians, and all of the same strain of bees. I had noticed the previous season that the severity of the cases seemed to be in direct proportion to the amount of black blood.

I had never heard Italianizing mentioned as a remedy; but as it seemed to be the last chance I decided to buy pure queens for the whole lot as soon as I could get them. Immediately after the honey-flow they were all requeened from the stock that seemed to be immune. None of them were treated in any way except that all were fed for a week before the queens were given. Some of them were a mere mass of disease. The infected combs were left in the hives, but the worst ones were unqueened ten days in advance, to give the bees a chance to clean out the dead brood.

The new stock was introduced mostly during the months of July and August, at a time when the disease would otherwise have been nearly at its worst. There was in every case a rapid decrease in the amount of dead brood; and all except the worst cases were perfectly healthy inside of two weeks. Within four weeks I could not find a cell of the disease in the yard. They have remained healthy up the present time, Nov. 1, and I expect no further trouble so long as I keep only pure Italians.

Now a few words in regard to the causes of this loss of brood. I am satisfied that it is an infectious disease, as Dr. Howard says, caused primarily by the use of moldy pollen. But there are other factors which must also be present to start the infection—notably, cool weather, scarcity of stores, old combs, and black blood in the bees. If the other factors are eliminated the moldy pollen is perfectly harmless, or even the combs filled with dead brood. In other words, if the larvæ are kept warm and well fed, the mold has no effect on them. The black bees are easily discouraged, and neglect or starve the brood when unfavorable weather and lack of stores come on; and if the mold is present the disease is started in that hive, from which it is readily carried to others. It does not seem to spread very far; indeed, it hardly spreads at all except to neighboring hives. Of two apiaries within a fourth of a mile of my own, one was healthy and the other had one case, after I had had the disease two years. I have bought the little apiary with the one diseased colony, and at the present writing all the bees near here are healthy.

Newman, Ill.

[I have read all you have to say on this subject with much interest; and while I know it has been reported by the foul-brood inspectors of New York that Italians are more immune to black brood than blacks, yet, in the case of pickled brood, such immunity is not yet proven. I am of the opinion that, if you had introduced ordinary hybrid or black bees of a heathy strain (of course killing off the old queens), you would have secured the same result. Mr. A. J. Halter, whose article follows next, effected a cure, but he does not say what stock he had that was diseased. He is a very progressive bee-keeper—one who, like yourself, has studied this subject very carefully. I think his bees are mainly Italians, and yet they were subject to the disease. He introduced new blood, and, presto! the cure was effected. It would be a very interesting fact, to queen-breeders at least, if it could be proven that Italians would resist pickled brood more than other stock. I, therefore, call on our subscribers who have had experience with the disease to let us know whether their Italians have been more immune to it than their other stock.—ED.]

EXPERIMENTS WITH PICKLED BROOD.

During the apple-bloom I bought a dozen colonies from a neighbor about two miles distant, the hives containing a good surplus of honey after wintering. When locating them among my bees I transferred them in more convenient hives, setting a few of the old combs in the open air for the bees to clean out before rendering into wax. Later I removed said colonies to an out-apiary.

When clover had been in bloom for at least ten days I noticed dead larvæ in both apiaries scattered here and there, beginning in the strongest colonies. Thinking at first the honey in the old combs which I had set out started the disease, I examined the colonies bought, but did not find any trace of its appearance, although later several colonies had a light attack while almost all the other colonies were affected.

About two weeks after its discovery I made shook swarms from a number of the diseased colonies, starting bees on foundation, placing frames with brood and honey from various hives with a few adhering bees away by themselves, letting them rear queens, all brood hatching before young queens began to lay. Mr. E. W. Alexander, Delanson, N. Y., I believe, used this method to requeen for cure of black brood.

The latter proved a success—no indications of reappearance. In the former it reappeared, almost more severely than at first, being obliged to remove the queen in one or two instances to avoid further destruction. It also seemed more severe in colonies run for extracted honey, as very nearly every new frame in the upper story, where the queen had access, showed dead larvæ. I did not feed any colonies during the attack, using nature's own product to define the cause, and I believe I feel justified in stating that thin unripe honey fed to larvæ during unfavorable weather conditions has a tendency to bring on the disease.

Whether the disease can be attributed to feed alone, or to germs of a bacterial nature, future developments may determine more definitely. A. J. Halter.

Akron, O., Sept. 20.

[See footnote to preceding article.—Ed.]

WHY YOUNG BEES DO NOT BEGIN FIELD WORK.

Do the Hairs over the Eyes Obscure Vision at an Early Age?

BY ARTHUR C. MILLER.

On page 846 Dr. E. F. Phillips had an interesting article giving a theory as to why bees do not begin field work at an early age. He attributed it to imperfect vision, due to the eyes being covered with hairs. Several considerations at once present themselves to cast doubt on the tenability of such a theory. We know very little as to the action of bees' eyes, particularly as to how much light is needed to convey distinct images to their perception. We know that they do many things in nearly absolute darkness, and we do not know whether they work under such condition entirely by touch or by some sixth sense, or whether they also use sight. We know how distinct an image we can get on a sensitive plate from the light admitted through a very small pin-hole, and we also know how much we can see with our eyes when looking through a minute aperture. The hairs do not shut off all light; they are not so dense but that the bee can see through them, for we can see the bee's eye, and the bee has the advantage of having its eye close to the apertures.

But the greatest of all objections to Dr. Phillips' theory is the fact that at swarming time bees of all ages, even to those too weak to use their wings, rush forth with the swarm, and all, except the weaklings, take flight and go safely and surely, and show every evidence of good usable eyesight. This applies to virgin queens, to drones, and to workers. I think it reasonable to assume that eyesight is not the cause of lack of early flight, or at most is only a slightly contributing cause.

On emergence from the cell the bee is not perfect. Even to the unaided eye this is evident. It is small, weak, and unable to use its wings, and evinces almost no effort to do so when tumbled from the comb. Structurally, the bee is perhaps nearly complete; but it takes many hours of *stretching* (if I may use the term) before the abdomen assumes normal dimensions; before the bee can walk firmly and steadily; and still longer before the bee can fly. Surely this indicates immaturity.

I think it was the English naturalist Hunter, who, about 1780, showed the great difference in the capacity and activity of the stomach of the young from that of the old or field bee. In view of this, together with what we know of the gradual change in the habit of the bee as time elapses, is it not a more plausible theory to attribute the changing activities to gradual functional changes within the bee's body, rather than to the mere shedding of a few hairs? Changes in manner of living, due to organic changes, are very numerous in the animal world.

Perhaps, after all, the bee is not so far removed from mankind but that she is led in divers ways simply by a precocious appetite.

Providence, R. I., Oct. 10.

[I raised the same question about young bees flying with the swarm, and flying out for a playspell in front of the hives. Dr. Phillips met me half way by saying that we old bee-keepers did not, he thought, realize how much the bees depended on their very acute sense of smell for performing their work. He called my attention to the fact that bees would seem to follow robbers through the air direct to the spot where the stolen sweets were to be obtained. He believed that young bees could follow their older sisters in the air by the mere sense of smell.

Perhaps I have not quoted the doctor correctly; but if not, he is at liberty to set himself right. I grant that there is considerable force to your argument, that young bees during the first few days are very immature; and whether blind or on account of obscure vision they probably could not go forth into the open air immediately. Possibly there is a double reason—obscure vision and general weakness—that keeps young bees at home.—Ed.]

CLEANING PROPOLIS OFF FROM SEPARATORS, FENCES, T TINS, ETC.

A Valuable Article.

BY EMMA WILSON.

In the A B C, p. 224, Emma Wilson tells of cleaning separators with concentrated lye. Can we have her tell us in Gleanings if it proved a success, and if they still use the plan? E. G. Carr.

New Egypt, N. J., Oct. 29, 1904.

[This was referred to Miss Wilson, who replies.—Ed.]

In reply to Mr. Carr I would say that, so far as removing the propolis was concerned, it was a success; but the separators curled badly in drying. Of course, this difficulty might have been overcome by putting them in a press; but as new ones were not very expensive we preferred to buy new rather than fuss cleaning the old. In the case of fence separators it is different, as they are too expensive to throw away; and, although I have not tried it, it is pretty certain that they will not curl as the plain separators did.

The plain separator is simply a very thin piece of wood, 3½ inches wide, and, without any restraining influence when drying, will curl much as a piece of paper would; and the wider the separator the more chance to curl. The parts of the fence are narrow, giving less chance to curl, and they are held in place by the cross-pieces.

It would be an easy thing to pile evenly in a pile a lot of fences after cleaning them, laying a weight upon them; and, if allowed to remain thus until perfectly dry, it would seem they should be just as straight as when new.

Of course, glued separators could not be cleaned in this way; but I understand that the fences are now nailed so that the fence of 1905 can be dipped in hot water or lye without injury. One great objection to the fence separator has been the difficulty of cleaning it properly; and if this can be done away with it will be a big item.

Having had no little experience in cleaning T tins, it may be worth while for me to suggest how I think fences should be cleaned.

You can do the work in a wash-boiler on the cook-stove; but it will be much better if you can have a large iron kettle, such as are used at hog-killing time, and formerly at soap-making, having it over a fire built outdoors. This gives you all outdoors to muss in, and no cleaning up afterward.

Fill your kettle a little more than half full of water; and when it comes to a boil add three cans of concentrated lye, pouring it in very carefully and slowly, because the lye is very likely to boil over.

Now put in as many fences as will go in the kettle without being too much crowded, for there must be room for the fences to be moved about a little in the kettle. This can be done with a four-tined pitchfork, slowly stirring the fences up and down, so that the lye can get at all parts, and so that the movement shall wash off the loosened propolis.

If the lye is strong enough, a very few minutes will suffice to clean them thoroughly, and they can be lifted out with the fork into a tub of clear rinsing water, then out of the rinsing water in the same way, and piled up to dry as before suggested.

Whenever the solution acts too slowly, more of the concentrated lye must be added, and water must also be added as fast as needed. See that the water is kept hot all the time.

Marengo, Ill.

NEW GENERIC NAMES FOR HONEY-BEES.

BY FRANK BENTON

(*Apicultural Investigator, United States Department of Agriculture*).

One of the entomologists connected with the United States National Museum, Dr. William H. Ashmead, has been making a comparison of the various exotic honey-bees that have been received at the Museum, and, as a result of his study of their structure, has written an article entitled "Remarks on Honey-bees," which was published May 20, 1904, in the Proceedings of the Entomological Society of Washington, Vol. VI. No. 2. Mr. Ashmead says: "The old genus *Apis* should, I think, be divided into two genera, representing the two sections first defined by Smith, as follows:

> "Eyes somewhat convergent above, so that the vertex is narrowed, the lateral ocelli being farther from each other than to the eye margin; second recurrent nervure received by the third cubital cell very near its apex . . . . *Megapis*, n. gen.
> (*Type: Apis dorsata* Fabr.)
>
> "Eyes not convergent above, the vertex not narrowed, the lateral ocelli not farther from each other than to the eye margin; second recurrent nervure received by the third cubital cell some distance from its apex . . . . *Apis* Linne.
> (*Type: Apis mellifera* L.)"

It is thus seen that our ordinary *Apis dorsata*, known under the common name of the giant bee of India, has, on account of structural differences which Mr. Ashmead considers important enough to give it generic rank, been placed in a new genus which he has named *Megapis*, the meaning of which is, *large bee*. Mr. Ashmead recognizes, in this new genus which he has erected, two species, *Megapis zonati* Smith, and *Megapis dorsata* Fabricius. The first of these is found in the Philippines, and in the Island of Celebes, and is a dark bee with the first two segments of the abdomen edged with a narrow band of light color. The body is somewhat more black than that of *dorsata*. The latter shows broad, bright, orange-colored bands across the abdomen, varying somewhat in different regions, almost the entire abdomen, in some cases, being orange-yellow, while in others the yellow shows on only three segments. It is recorded from India, Java, Ceylon, Borneo, Malay Archipelago, and the Philippines.

In the old genus *Apis* Mr. Ashmead recognizes seven species, namely: *Apis mellifera* Linnæus; in all parts of the world (introduced). *A. cerana* Fabricius; Japan and China. *A. Indica* Fabricius; India. *A. nigrocincta* Smith; India, China, Malay Peninsula, and the Philippines. *A. nigritarum* Lepeletier; Africa. *A. unicolor* Latreille; Madagascar. *A. florea* Fabricius; India.

While placing this last, which is the tiny East-Indian honey-bee, under the genus *Apis* for the present, Mr. Ashmead is really of the opinion that it should be put in a genus by itself, since it has structural characters which differentiate it greatly from the genus *Apis* as now restricted. He proposes, therefore, to erect for it the genus *Micrapis* (small apis).

While many who have examined these various types of bees may not be entirely agreed with Mr. Ashmead in his conclusions, especially as regards the species which he has seen fit to recognize under the genus *Apis*, still the subdivision of the hive or honey-bees into three distinct genera is a very natural one, and the pronounced characteristics which differentiate them would make it appear that the three general divisions will hold, so that hereafter we shall have all honey-bees grouped under *Megapis, Apis, and Micrapis.*

Washington, D. C., Sept. 20, 1904.

TROPICAL NOTES.

The Possibilities of Bee-keeping in the Islands.

BY W. K. MORRISON.

Fine brass wire is best for wiring frames in the tropics; but it is a trouble to get it fine enough from local hardware firms.

In many parts of the West Indies the honey season can be lengthened out by carrying the bees to the mountains. The time to carry them is when the lowlands have become parched during the dry season. It rains more in the mountains. The combs must be wired for transport.

Alfalfa has been grown in the island of Grenada as an experiment for several years; and Mr. Jordan, the present agricultural instructor, has succeeded in growing it in Montserrat. There is a dry arid portion of Jamaica where it would probably grow well if irrigated. Alfalfa grows in immense fields around Bogota, the capital of Colombia.

Cypress is by long odds the superior of white pine for tropical use. Pine will last a long while if it is carefully protected from the rain, and kept up off from the ground. Hot melted beeswax brushed on a roof-board is a great protection. Boots may be rendered almost impervious to moisture if the seams are brushed with hot beeswax. Harness-dressing in rainy countries should contain a considerable amount of beeswax or it is of but little use.

For obvious reasons frozen honey is not popular in these latitudes, and it does not matter to us how it is cut. But good confectionery can be made with honey as a base; and where chocolate grows on the trees it ought to be easy to make a good confection.

Two Ideal supers with shallow extracting-frames and a zinc honey-board in between make a splendid wax-producing hive; and if the colony is fed a little in times of scarcity it is wonderful the amount of wax one colony can produce fixed up in this way. Don't feed too fast.

In the southern parts of South America are immense areas covered with the cardoon, a giant thistle which is a great bee-plant. It grows as tall as a man on horseback, and it is a difficult proposition to ride through. The cardoon is an excellent vegetable, but the Southerners have too much of it.

There are some ideal locations for bees in the Bahamas; but life on a coral island is "awfully" lonely, and yet it was there that Columbus first set his foot in the new world. Probably the islands were more populous then than now. *Lippia, Lantana,* century plant, and mangrove are some of the leading honey-plants.

Panama is all right for American bee-keepers, provided they don't like whisky, gin, or schnapps. The best place is the city of Panama. It is not much of a place for ladies.

Beeswax is selling at $35 to $37 per 112 lbs. in London. This means nearly $750 for a ton of beeswax, and opens up a wonderful vista to tropical bee-masters who understand wax-production.

Some late shipments of logwood honey brought $9.00 per cwt. in London. This is a fair price, but no more than the worth of the article. The chief competitors are alfalfa honey from Chili, and sage honey from California. The latter can get a dollar more.

Barbados may yet become a honey country, as the cultivation of cotton is rapidly extending. Barbados is probably the cleanest-cultivated country on the whole globe. Even on the roadside not a weed is seen. Anybody trying to introduce sweet clover into Barbados would fail. It would be pulled out by the roots at once and fed to the goats.

Increase is easy in warm latitudes—feed sugar syrup, and the bees will swarm right along; the same if you want queens—just feed—they'll come.

There are no tame bees in Cayenne, French Guiana, as yet. It is a grand country; and surely if the French are worth their salt they ought to see about this at once. If they didn't pull the buds of the clove-trees they could have clove honey. An American bee-keeper would believe himself in heaven if he were suddenly transported to the banks of the Oyapok. It is beautiful beyond compare, and no priority rights to be considered either.

. The writer can indorse Mr. Woodward's views of West-Indian apiculture to the letter. Nothing will destroy the chances of the tropical honey industry quicker than the employment of cheap labor. It means bad results in every way. It requires skilled intelligent labor here as well as in Ohio. The only place to employ cheap labor is in wheeling the hand barrow and turning the crank of the extractor. Bee-keeping is admirably suited to white-skinned folks in the tropics for several reasons.

If there is danger of a hurricane, nail on your bottoms and tops, and set the hives on the ground. The writer did this in a hurricane, and came through it without the loss of a colony.

It is a pity some one does not import *Apis Indica* to these parts. It ought to succeed admirably in the West Indies. It is a smaller bee than ours, and the frames would require closer spacing. Regular worker foundation is converted into drone comb.

Some bee-keepers object to the shortened top-bar. They should drive the staples into the top-bar if it is too short for their use.

A small glue-pot, some wax, and a camel-hair brush are very nice to have when fastening foundation into shallow frames. Some people don't know this, and make sticks to wedge it in. Wax holds foundation better than wedges.

Wires may be imbedded into foundation by gravity. If the frames are laid flat for some time the foundation will eventually imbed itself if the weather is warm—not too warm. Practice will show when the conditions are right.

In some parts of the West Indies bees use wax instead of propolis to close up all spaces. It seems they can't get the latter substance very readily. The weather being always warm, the propolis does not hold hard, hence the use of the Hoffman frame.

There are small apiaries on nearly all of the Grenadine islands, though some are no larger than a common American farm. The largest is 3000 acres small. They would be grand places to breed queens if there were a way to ship them when bred. The inhabitants also hunt whales and breed ponies. The Virgin Islets also have some bee-keepers, so also have the Caicos Islands, where mangrove cuts a figure. The Turks Islands have no bees, for there are no flowers there except in flower-pots.

The fine little island of Curacao has some bee-keepers. Uncle Sam may yet own this little island, as the Dutch are talking about selling out some of their tropical possessions. It is Dutch from the ground up. It would suit the United States admirably, as it is a healthy little country.

OUR HOMES,

BY A. I. ROOT.

Father, forgive them; for they know not what they do.—LUKE 23 : 34.

This Home paper is to be mostly incidents from the talks at the recent five-days' session of the Anti-saloon League at Columbus. Monday and Tuesday, Nov. 14 and 15, the time was devoted to the Ohio Anti-saloon League—the other three days to the National League. By way of introduction, let me say this was one of the largest and most enthusiastic meetings ever held by this organization. There was no chance for any one in that gathering of thousands to get sleepy or dull, because the speakers were greeted almost constantly by the clapping of hands, shouts of "amen!" "that's so!" etc. From beginning to end it was one uninterrupted series of rejoicings. One member would get up and say that his State was all dry except certain counties, say half a dozen or a dozen out of nearly a hundred. A delegate from Vermont held up a map which had all the dry counties in white and the wet ones in black. He said, "Friends, this is the map I showed you a year ago, and I said at the time we were going to work hard to make a lot of those black spots come out white another year." Just at this point he let his map drop, which unfolded a new map just above it, both maps being thus exposed to the view of the audience, and, sure enough, more than half of the black spots were made white; and, oh what rejoicing!

Hon. Charles E. Littlefield, from Maine, gave us a great array of facts and figures relative to prohibition in Maine. I have not space for a tenth part of them, but will give one item as nearly as I can from memory. He mentioned quite a number of prominent States in the Union, giving the consumption of liquor per capita. If I remember rightly, several States showed something like eight or ten dollars per annum for every man, woman, and child. I think Ohio had about $2.00 or a little over; and the averages all along were from $1.00 up to eight or ten times that much, as I have said. But in Maine it takes only *four cents* to furnish "drinks" for a year for every man, woman, and child. If I am correct, no other State in the Union comes anywhere near such a record. Then he told us of the *results* of such a degree of prohibition. These figures came from the United States Revenue Department, and can not be much out of the way. You will remember that Ernest, in his recent trip, corroborated this statement in regard to Maine.

At some town in Ohio they have recently had a hard fight, and the saloon-keepers boycotted a certain shoe-dealer because he took such a prominent stand against the "rummies;" but when the temperance people found it out the matter was talked up, and they sent out into the country among the farmers. One well-to-do man got so full of enthusiasm that he took his big team and hay-rack, and went all around the country hunting up poor families who were short of good shoes for winter. He took his load into the town, drove up before the shoestore, and had this dealer, whose trade had dropped off to such an extent that he was in real trouble, fit out the whole load of juveniles. This got into the papers, and not only farmers but everybody else who loved temperance and righteousness flocked into that shoestore, and even bought shoes they did not need just then, to show their good will. This was carried on to such an extent that the shoe-dealer, before he knew it, was faced with almost empty shelves, and was obliged to send on for a fresh stock of the very latest up-to-date goods. But you should have heard the cheering and words of praise to God for this report.

Now, dear readers, is it not possible that *you* can do something along the same line to help along a righteous war in your own neighborhood? for we have abundant evidence that this same crusade is going on everywhere. Many of the Southern States are leaving us in the North away behind. In talking with a relative of mine in Xenia, where they have had a big conflict, not only in making a city of 10,000 inhabitants dry by law, but in cleaning out the police and other officers who were determined *not* to enforce the law, he told me that he had for years past had trouble in collecting his rents. He owns 23 different houses that are rented to people of moderate means. Well, since the saloons have been abolished from the city (and those who attempted to sell *illegally* have been repeatedly brought to grief) he says not a single tenant has failed to pay up his rent promptly. When the saloons were running, drunkenness was his worst trouble. He was not only obliged to keep dismissing renters because of intemperance, but he lost a good deal of money every time a change was made. Now for my text and my story.

Rev. Charles Mitchell, pastor of the First M. E. Church of Cleveland, O., said something as follows:

"When I first commenced in the ministry I started in a little place in Kansas. In my boyish simplicity I very soon opened up without fear or favor on the saloon-keepers in our town. Pretty soon the proprietor of one of the oldest and worst saloons came to me and spoke about as follows: 'Young man, I confess I had rather taken a liking to you. You came in among us in a friendly sort of way, and went to work in right good earnest, and we all liked you. Now, I am an older man than you, and I have had some experience, and I should like to give you a little advice.' After a little more friendly and patronizing talk he wound up by saying, 'Now, young man, after this you attend to your own *damn* business, and I will attend to mine.'"

The young minister waited a little to catch his breath and to straighten up at such an insult, not only to himself but to God's people as well, and then replied:

"Yes, you will no doubt continue, my old friend, to attend to your own *damnable* business; and I want to tell you, too, that, so long as you *do* this, I will fight you and all the rest of your class just so long as God shall give me breath."

The speaker smiled pleasantly while he added, "As I have grown older it may be I have learned to be a little more careful, and perhaps not quite so vehement as when I was a boy; but I think I have kept my pledge pretty well in fighting this business from that time up to the present day."

It is well known there is a law in Cleveland, the home of this pastor, against having saloons open on Sunday; but he closed with a tone indicative of sadness by saying, "Dear friends, I do not know of a single saloon in the great city of Cleveland that is now kept closed on God's holy day. Some people complain because we say the saloon-keeper is a law-breaker. He can not succeed in his business without breaking the law. How does that statement look?"

One of the delegates from York State told us about going to a town to deliver a temperance lecture. The only hotel in the place contained a bar-room. The proprietor was so busy in said bar-room he could hardly be spared long enough to attend to a guest, even though that guest was a minister who was to stay with him over Sunday. Our friend was given a room right over the bar. The carousing was so great during the night he could not sleep. He finally got up and went down to see what was going on. The whole gang was too drunk to notice him or to pay any attention to him. In his sermon the next Sunday morning he gave the full particulars, and called on the people of his congregation to take immediate steps to enforce the law and bring that hotel-keeper to a realizing sense of what he was doing. The inn-keeper did not go to church, of course; but the sermon got to his ears before the good pastor reached the hotel-door when he came home to dinner. Our friend of the bar was by the doorstep, and was going to forbid the pastor entering. He said, "I do not like such treatment. I will sue you at the law for damaging my house and my reputation."

But the Anti-saloon workers are generally men of pretty good courage. The man of God faced him and said, "My good friend, if I were you I think I would put on my good behavior just now, and be as quiet and civil as possible. You know as well as I do that you are breaking the law; and if you get off without prosecution you may consider yourself very lucky indeed."

This, of course, cooled down our irate friend, and he put it more mildly.

"But, my good sir, our regular parson and myself are good friends. He does not pitch into me and abuse me in that kind of way."

"Very true," was the reply. "Your parson is obliged to live here with you, and, to tell the truth, I am sorry for him; but *I* am a stranger. I shall soon go away and never see you again, perhaps. I am exactly the one to tell you these plain truths, and I tell them for your *own good*, my dear sir; and I try to do my duty well and faithfully before God."

Our worker was allowed to go in and get his dinner; but just as he was about to leave, the landlady came to the door and called, "Wait a minute, elder. I want to say to you, before you go, that you have a lot of friends out here in the kitchen. We women-folks are right with you; and if you had only had the courage to say to my husband when you first came last night what you said this morning, that shameful scene of last night would have never happened. Come again whenever you call this way."

Let us now consider a minute these two saloon-keepers — first the man who, with such a poor comprehension of the sacred calling of a minister of the gospel that he could say to him, "You attend to your *damn* business," and then this other one. At first our blood boils over with indignation to think that educated and refined men among God's ministering servants should be subject to such abuse as this. But when we reflect a little more, does it not indicate that these poor fellows are to be *pitied* as well as blamed? While we pray for them and the class they represent, can we not say, in the language of our text, "Father, forgive them; for they know not what they do"?

Supt. E. S. Chapman, D.D., LL.D., of

California, who is sometimes called "Father Eloquent," on account of his wide celebrity as an orator, gave us perhaps the most thrilling and powerful argument of the whole session of five days. I will try in my feeble way to give you one of his strong points. Not long ago one of his daughters went to San Francisco to meet some friends. For some reason nobody at that special time was on hand to meet her at the depot. without any particular thought in regard to the matter, she showed her card to a fine-appearing young man who stood near, and who did not seem to be in such a hurry as some of the rest. He was very affable and polite, and he told her it would give him but very little trouble to go with her to her friend's, for it was not far away. Before they got out of sight, however, an old man hurried after them and called out "Stop!" At this the young lady turned around. The old gentleman, somewhat out of breath, said, "Young lady, this man is a villain. Come away from him this minute or you will get into trouble."

The young fellow began to show some signs of indignation; but the elderly man silenced him by a word, and he slunk out of sight as soon as possible. The old man then took the girl where she wished to go, and explained to her that it was right in an opposite direction. The speaker said he wished to digress a little to explain that this younger man was what is called a "procurer." In our large cities there are thousands of them employed. A few years ago he was in a city where a number of men were sitting out in front of a hotel. It was in the afternoon, and a great many women were passing along the street in front of the group. A young man well dressed and of pleasing manners sat there in conversation with the rest. All at once he started up and followed after a girl who passed. The older man said to the rest of the crowd something as follows: "Did you see that young man start up all of a sudden? Yes.

"Well, let me tell you something about him. He gets big pay from a certain institution here in the city. Young as he looks, he is an old hand in the business. He has learned by studying human nature, and particularly by studying *girls*, that there are certain ones he can approach without getting into trouble. He has learned by long experience so he can tell by a girl's actions and by her looks whether she is likely to be the one he wants. Now, what I am saying need not reflect on the girl's character at all. It is the innocent and unsuspecting he is after—those who have not learned the ways of the world, and he catches on to this by their air and manner. He will contrive in some way to get on speaking terms with the girl he has just followed. He will spend weeks and may be months in getting acquainted with her if she seems to be cautious. He will give fictitious references in regard to himself and family, for his employers see there is no lack of any thing that money can buy. Do you ask how he can sit around dressed up in fine clothes, and spend his time in this way? Well, let me explain to you that he sometimes gets *five hundred dollars* for a single successful intrigue of this kind."

With the above explanation Bro. Chapman proceeded with his argument.

"Now, friends, suppose I had been near when my daughter started off with that young fellow. I am an old man. I have neither strength nor muscle. Suppose this young chap laughed at me when I made a protest. Would some of you tell me that it was not worth while to make such a fuss about it? Suppose they would say, 'Why, this thing is going on every day. They have got money and means, and it is no use for us to try to help ourselves. They are young and strong. We are feeble old men, and have only a lot of women to help us.' Why, if I should come here on this stage and tell you I gave up because the fellow was too strong for me, and had too many others around him, you would hiss me out of the room. It is my duty as a father to *give my life* to save my daughter, even if it is but throwing it away. Again: Suppose this young man, as he disappeared with my daughter behind a closed door, had reached back and offered me a roll of bills, say $500, to keep quiet. Suppose he had suggested, 'My dear friend, you can take this money and build a nice sidewalk near your home and fix things up generally.' Now, what would you as American citizens say to an argument like that? Have I overdrawn it?"

At this there was a clapping of hands, and calls of "Not a bit!" until it seemed as if it would raise the roof. Then "Father Eloquent" added, in a way that nobody but himself could add, "My dear brothers and sisters, how much better is it for a man to devote his time and money to leading our *boys* astray instead of our girls?"

I was startled at the figure, and had just about decided in my own mind that, at least in the eyes of the world, it was a good deal worse to trap the girl than the boy; but to my surprise somebody called out, "Not a bit;" then another and another, until it seemed to be the united sentiment of that great concourse that the man who brings a boy down to ruin by deliberate and careful scheming, is just as bad as one who lures the daughter to *her* ruin.

At this point of the story he turned to some of the officers on the stage and asked the question, "My friends, what was it that the Governor of Ohio said when he objected to the Brannock bill? Have I been rightly informed when I am told he said, 'The Brannock bill as you have it is not *fair* to the *saloon-keeper*'?"

Several voices replied, "You have almost his exact words."

And now let me digress a little right here. You may remember I was present at that discussion in the Senate in regard to the Brannock bill. When I was told the governor said the above, my blood came up to boiling heat; but I did not know exactly how to explain the cause of my indignation. Father Chapman straightened it out. Said he in substance, "The United States proposes to be fair, and to give every one a chance to defend himself, white or black, rich or poor, providing the criminal stands before the bar or behind locked doors. How, in God's name, can any right-thinking man (to say nothing of the governor of one of the grandest and most glorious States in the Union), suggest that we should be *fair* to the *midnight assassin*, to the highway robber, or to the house-breaker, while he is at large violating the law?"

Dear readers, it may seem a little hard right here at this stage of proceedings to quote our text and say, "Father, forgive them; for they know not what they do," especially when we change the scene from a poor ignorant untutored saloon-keeper, one who knows nothing of Jesus and his love, and apply it to the governor of Ohio, and say, "Father, forgive *him;* for *he* knows not what he does"?

When the Anti-saloon League was started it had the Gospel of Jesus Christ for its foundation; and it expects to carry its work through from beginning to end in the line of "Jesus and his love."

You who have read the papers know of the resolutions passed by churches and church conferences of all or nearly all the leading denominations, to the effect that the liquor business from beginning to end is a crime against our State and the whole United States, and that we can under no consideration consent to the nomination or election of a man who insists that criminals and outlaws shall have "fair play" in their warfare against temperance and religion, and society in general.

A speaker whose name I can not recall told us the following little story which I shall use to close with.

On one of the great lines of railway leading into the city of New York there has been for years employed a most skillful and reliable engineer. But notwithstanding his ability and many good qualities, this man was all his life a terribly profane man. When things went wrong he would outrival anybody else in his awful profanity, and nothing could stop him. This man had just one vulnerable point. He had a wife and a humble little home, and one little flaxen-haired girl. His little Mary was his constant companion when off duty; and when he went to his work she followed him to the gate, reached her little hand through the pickets, and waved it in parting. A part of his run passed so near his cottage she could reach out through the pickets and wave her hand at him as he ran by on his big locomotive; and never once in his life did he pass that cottage without looking for the idol of his heart. She had learned the exact time of day when he was expected to pass, and was almost invariably on hand. One day, as she was getting a little older, he noticed she tried to climb up so as to look over the top of the pickets; and then it flashed into his mind that she might get caught, as children have in times before, and that very night he knocked a picket off so she could put her head through, and he could get a glimpse of her golden hair as she shouted after him endearing words and waved her little hand. One day little Mary fell sick of a fever; but the demands of his business were so great, and from the fact, besides, that there was almost no one else who could take his place on that exact run, the company urged him to stick to his post if it were a possible thing; and there he stayed until her case was a little dangerous. But he hoped to be back before any thing serious could happen. Long before he could get a glimpse of the cottage his eye was in that direction. Finally as he got nearer he saw something tied to the door that looked like black crape. There was the little gate with the picket off, but no golden-haired Mary. Through the blinding tears he saw there was no mistake. The crape was tied to the door. He put away his locomotive, and with fierce rebellious thoughts in his mind he approached the door. His poor wife, knowing what the probable result would be, came out to him in the yard; but even the sight of her and her suffering had little effect in quelling the rebellion in his soul. He cursed God. He cursed the day that gave him birth, the universe that brought forth men and women to live and suffer and die. He cursed the people who called God good; and finally when, from sheer exhaustion, he ceased for a moment, his poor wife, with her head bowed on his shoulder, between her sobs tried to tell him that little Mary left a message for him. At this he brightened up just a little, and eagerly asked what that message was. The poor wife as well as she could said something as follows: "Mary said, 'Tell dear papa not to feel bad. Tell him I will be waiting for him. Tell him I will ask Jesus to "knock a picket off," and say I will be sure to be there, and look out and wave my hand to tell him *where* to come. I know he will come, mama, for he will be sure to come where his little Mary is. Tell him not to forget, for I *will* be there sure.'" Little by little the man began to sober down. He asked to have the message repeated over and over. Slowly but surely he emerged from the darkness of unbelief into the light of faith and trust in Jesus Christ; and, in broken words, said, "God, have mercy on *me*, a sinner." "Clothed, and in his right mind," he sat at the feet of the Savior, a new-born soul. I can imagine the angels from heaven, looking down. I can imagine little Mary among that shining throng; and I can imagine their voices saying, "Father, forgive him; for he knew not what he did."

And now, dear friends, while we work to abolish the saloons and all the other attendant evils that are linked to them, let us do it in the spirit that was in Christ Jesus our Savior when he said of those who cruelly nailed him to the cross, "Father, forgive them; for they know not what they do."

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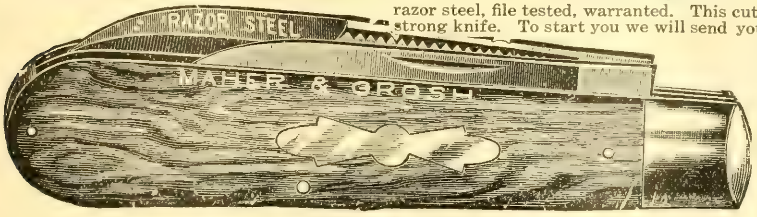

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1. First examine "Our Classified List," and choose the papers of "Class A," "Class B," and "Special," that you wish to order.

2. If you choose "A" and "B" *only*, their price will be readily found at top of next page.

3. If you choose a "Special Paper," you can add it to any combination by taking "our price" for it and adding to any combination price, or use it with GLEANINGS IN BEE CULTURE at $1.00, and with any papers in classes 1, 2, 3, and 4. Note that in any combination containing an "A" paper you may substitute any other "A" paper (chosen by you) at the same price; and, similarly, in any combination containing a "B" paper you may substitute any other "B" paper at the same price. The "Special Papers," however, are not interchangeable.

4. If you do not readily find prices on the papers which you wish by the above rules, *write to us for special quotations*, which will be promptly furnished by return mail.

CLASS "A"

	Regular Price
Gleanings in Bee Culture (SM)	$1.00
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The Cosmopolitan Magazine (M)	1.00
The Twentieth Century Home (M) A new home magazine.	1.00
Good Housekeeping (M)	1.00
Harper's Bazar (M)	1.00
Leslie's Monthly Magazine (M)	1.00
Pearson's (M)	1.00
Success (M)	1.00
Woman's Home Companion (M)	1.00
The Book-keeper (M)	1.00
The Sunset Magazine (M)	1.00
Four Track News (M) An illustrated journal of travel.	1.00
World To-day (M)	1.00
The National Magazine (M)	1.00
The Era Magazine (M)	1.00

CLASS "B"

Current Literature (M)	3.00
The Critic (M)	2.00
The Independent (W)	2.00
Ganton's Magazine (M)	2.00
Overland Monthly	1.50

Postage Our prices cover postage on magazines and books in the United States and American possessions throughout the world, and in Canada, Mexico, and Cuba. Foreign postage, $1.00 extra on "Success;" 50 cts. extra on "American Boy," "Book-keeper;" 75 cts. extra on "Good House-keeping," "Harper's Bazar," or "Twentieth Century Home;" $1.00 extra on "Cosmopolitan," "Country Life," "Harper's Magazine," "Leslie's Monthly," "North American Review," "Outing," "Peterson's Magazine," "Review of Reviews," or "World's Work;" and $1.75 extra on "Independent," or "Outlook."

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	Regular Price	
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The Booklover's Magazine (M)	3.00	2.50
Literary Digest (*new*) (W)	3.00	2.75
Scribner's Magazine (M)	3.00	2.85
Education (*new only*) (M)	3.00	2.50
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Any of the papers shown in this list may be added to any combination in our offers by adding the price shown in the second column. The papers marked * do not allow any reduction, but the full amount must be paid by each subscriber.

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(See preceding page for classified list.)

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with two of A and one of B (our price) $4.00.
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" " " and two of Class A	4.00	2.50
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" " " and Country Life	5.00	4.00
" " " and World Work	5.00	4.00
" " " and Review of Reviews	4.50	3.50

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.25	Poultry Item	.15
.25	Poultry Topics	15.
.50	Successful Farming	.15

No. 2.

Pub. Price.		Our Price.
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.35	Poultry Gazette.	.20
.50	Fancy Fowls	.20
.50	Farm Journal	.20
.50	Agricultural Epitomist	.20
.50	Farm News	.20
.25	Modern Farmer	.20

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.50	Ohio Poultry Journal	.30
.50	The Feather	.30
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1.00	Prairie Farmer.	.30
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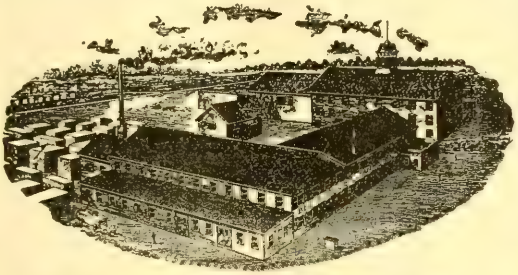

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We make the broad claim for this outfit that **no retail dealer in the land can duplicate it for less than double the price we charge.** And when we say "**a good substantial Violin**" we mean just what we say. It is not a toy or plaything, but an instrument well made, built to produce music, and just the thing for the beginner. Has good clear tone and will be a **big surprise** to any one wishing a violin.

Write for one, also ask for our **free** catalogues of "Everything Musical" from the cheapest to the best, for the Band and the Orchestra. If you want a violin costing anywhere from $25 up, we will send you 5 to select from. We carry an **immense stock**; being importers and wholesalers, we can supply any demand at prices that **mean money saved to buyers.** Sheet music catalogues mailed on application. Bargains in **SECOND-HAND** and shop-worn instruments; send for list. Address

H. E. McMILLIN, 106 Superior St., CLEVELAND, OHIO

Our Catalogs

For 1905 Will Soon be Ready.

In the meantime let us make you an estimate on the goods you need. We are prepared to furnish you

Bee-keepers' Supplies

AT LOWEST PRICES,

and can make prompt shipments. : : : :

Discounts for Early Orders.

J. M. Jenkins,

Wetumpka, Alabama.

Don't Forget

that time is fast passing and that each month the discount gets less. We give discount on goods for next season's use, from September to next April, and the amount saved by buying now is certainly worth looking after.

Send us a list of your wants for next year. We sell

LEWIS' GOODS

AT

Factory Prices

Root's Smokers and Extractors, Dadant's Comb Foundation, etc. Everything the best, service unequaled. Catalog free.

C. M. SCOTT & CO.

1005 East Washington St.,

INDIANAPOLIS, - IND.

SPECIAL NOTICES

Special Notices By Our Business Manager

100TH-THOUSAND EDITION OF A B C READY.

The new edition of our A B C of Bee Culture is now ready for delivery. This edition has received larger additions in the way of new matter and entirely new subjects than any previous one. It has many new illustrations, and, as in the past, it is clear up to date in every particular. While it has been greatly enlarged, the price will be kept the same as before—$1.20 in cloth, postpaid, or $1.00 by express or freight.

AN "EDITION DE LUXE" OF THE A B C OF BEE CULTURE.

We are arranging to furnish a limited number of "de luxe" copies of the A B C book. These will be bound in full leather, embossed in gold. The price of these will be $2.00 postpaid. Then we have also another edition bound in half morocco, which we can furnish for $1.75 postpaid. These will be just suited for a nice Christmas or birthday present to some new enthusiast on bees.

FRENCH EDITION OF THE A B C BOOK.

We expect to have a French edition of the A B C ready for delivery in about three months. We are now at work on the Spanish translation, and expect ere long to get out another edition, in German. The book has been selling in English at the rate of nearly 10,000 copies a year. Indeed, many find it to their advantage to buy a new edition every two or three years, because each book is so greatly different from the preceding one.

A CLEAN FARM PAPER.

Are you interested in having one for your family to read? If so, write for a

Free Sample Copy of the Modern Farmer.

¶ It is clean and helpful on every page, and does not contain whisky, patent-medicine, or fake ads. It is just the paper to put in the hands of your children, if you want them to live honest and upright lives, and love their home surroundings.

BEE-KEEPERS' CLUB.

Modern Farmer, one year	$ 50
Silk Front Bee Veil	50
Gleanings in Bee Culture, one year	1 00
Langstroth on Honey Bee	1 20
American Bee Journal (new only)	1 00
	$4 20

¶ All of the above only $2.50; first two, $ .50; first three $1.25; first four, $2.10. New subscribers for the A. B. J. can substitute it for Gleanings if they wish. Renewals for A. B. J. add 40 cents more to any club. Western Bee Journal can be substituted for either bee paper. No changes will be made in any of these offers. Write for OTHER CLUBING OFFERS, and a price list of bee supplies very cheap.

E. T. ABBOTT, St. Joseph, Mo.

Christmas Books.

Best new and old. Special list of Children's Books free on request. Prices reasonable.

M. T. WRIGHT, - MEDINA, OHIO.

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in our printery. That is why we save you money. Sample hundred envelopes, noteheads, letterheads, business cards, statements, or billheads, **40c** postpaid. Samples free. **Young Brothers, Girard, Pa.**

TEXAS BEE-KEEPERS!

We have the Southwestern Branch house for the W. T. FALCONER M'F'G CO., and will carry a full line of their famous goods at FACTORY PRICES.

We will handle honey, beeswax, and honey-cans, and shall buy and sell Bees and Queens. OUR AIM is to supply the bee-keeper his wants and buy his products in return. When in need of anything in our line don't forget to give us a trial: we are here for business. Catalogs now ready, and we advise you to order early and get the discounts.

We buy and sell REAL ESTATE, and transact a general REAL-ESTATE BUSINESS. MONEY LOANED on approved properties. We want your business, whether you wish to buy or sell. ANY ONE wishing to buy bees and homes in Texas is especially urged to write us.

THE HYDE BEE-SUPPLY CO.,
H. H. HYDE, M'g'r, **San Antonio, Tex.**

GOOD QUEENS

can always be had by sending your orders to us. Untested queens, $1.00 each; $4.25 for six, or $9.00 per doz. Tested, $1.50 each. Nuclei and bees by the pound a specialty. Write for prices. Wholesale orders solicited. We fill wire orders from 100 to 300 queens to responsible parties with 10 hours' notice. Safe arrival and satisfaction guaranteed. We have Carniolan, Holy Lands, Cyprians, Goldens, and the old-fashioned three-band Italians. All reared in separate fields 10 to 20 miles apart. All the Holy Lands and Cyprians in this part of the country are from our strains and our importations. Don't fail to consider quality and our thirty years' experience. Best breeders, $5.00 each.

The Jennie Atchley Co.,

Box 18, Beeville, Bee Co., Texas.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS. Plenty of fine queens of the best strains on earth, and with these I am catering to a satisfied trade. Are you in it? Or are you interested? Laws' Leather and Golden Italians, Laws' Holy Lands. These three, no more. The following prices are as low as consistent with good queens: Untested, 90c; per dozen, $8 00; tested, $1; per dozen, $10. Breeders, the very best of either race, $3 each.

W. H. LAWS, Beeville, Texas.

Try Me

and see if queens raised by a little boy, 14 years old, are not as good as any. I have been brought up in the queen-rearing yards. Untested, $1.00 each; $4.25 for six; $9.00 per dozen. Safe arrival and satisfaction guaranteed. Money-order office Oakville, Texas.

IVES ATCHLEY, LAPARA, LIVE OAKS CO., TEXAS.

For Your Bee Supplies, Berry Boxes and Crates

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SHEBOYGAN FRUIT-BOX COMPANY, SHEBOYGAN, WIS.
Liberal discounts on all orders till January 1, 1905.

BATTERY TESTERS, 75 CENTS.

Postpaid by mail, 80 cents.

These are a wonderful convenience, not only to those who run automobiles, but where dry batteries are used for running gas-engines or any other purpose. The instrument is small enough to be carried in the vest pocket, and it will at any time indicate what batteries are weak or exhausted, in an instant. Address **A. L. Dyke Automobile Supply Co.**, Olive and Walton Sts., **St. Louis, Mo.** The above firm also deals in all accessories and automobile parts and supplies, gas-engines, etc.; also the book "Diseases of a Gasoline Automobile, and How to Cure Them." Send for circulars.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

We will allow a cash discount of 4 per cent on orders sent in during Dec.

Send for Our FREE New Illustrated Catalog and Price List.

Dittmer's Foundation Is the Best.

Will tell you why if you will send for free catalog and samples.

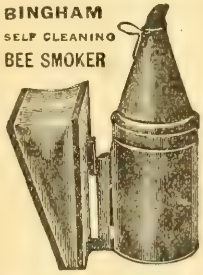
Early-order Discount on Full Line of Supplies.

Wholesale and Retail

Working Wax into Foundation for Cash a Specialty.

E. Grainger & Co., Toronto, sole agents in Canada for Dittmer's Foundation.

Gus. Dittmer, - : - Augusta, Wis.



If You Want a Smoker

That goes without puffing, clean, durable and handy, Oldest, newest, and embracing all the improvements and inventions made in smokers, send for circular to

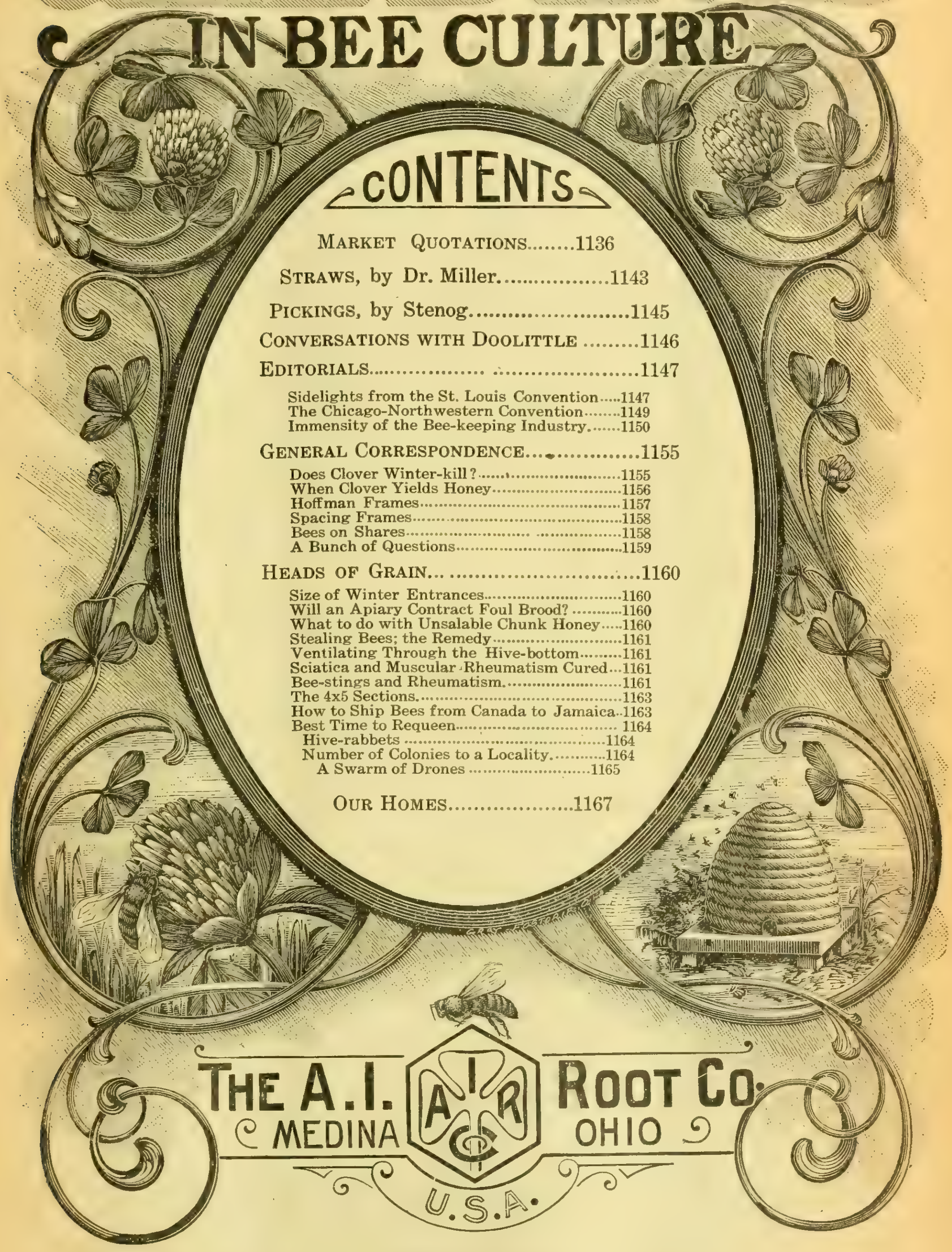
T. F. Bingham, Farwell, Mich.

Frankfort, Mich. Nov. 22, 1904.
T. F. Bingham, Farwell, Mich.

Dear Sir:--Replying to your favor, I have 90 acres of peach trees, the bees pollenize the flowers and are a great benefit to them. The smoker you sent last spring is the best I ever used. W. G. Voorheis.

Volume XXXII. DECEMBER 15, 1904. Number 24

GLEANINGS IN BEE CULTURE



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BEESWAX WANTED AT THE HIGHEST MARKET PRICE.

LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

4 Per Cent Discount for December.

George E. Hilton, Fremont, Mich.

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For the New Season---for Cash Orders.

During October, 6 per cent.
" November, 5 "
" December, 4 "

And you get Root's Goods. Tell us what you want, and we will tell you what it will cost. **Our Catalog for the asking.**

M. H. Hunt & Son, Bell Branch, Mich.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Let me sell you the Best Goods Made; you will be pleased on receipt of them, and save money by ordering from me. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; it will be mailed promptly, and free of charge. :: :: ::

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Allowed on early orders; take advantage by ordering now. Orders received during

November, 5 per cent
December, 4 "
January, 3 "
February, 2 "
Off Catalog Prices.

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—Honey has not been quite so active in the last ten days, but more demand is expected soon, as more honey is sold at the present time than at any other season of the year. We quote fancy white, 15@16; No. 1, 13@14; amber, 11@12. Extracted, white, 7@8; amber, 6@7. Beeswax sells quick at 25@26. We are producers of honey and do not handle on commission.

WM. A. SELSER,
Dec. 8. 10 Vine St., Philadelphia, Pa.

CINCINNATI.—The demand for honey at the present time is not good, owing to the approach of the holidays, when too many sweets are found on the market. On the other hand, the trade is well supplied with comb honey, that will require a considerable length of time to be consumed. We are offering extracted white clover in barrels and cans at 6½@8½. Amber, 5¾@6½. Fancy comb honey, 12½@14. Beeswax, 29@30.

THE FRED W. MUTH CO.,
Dec. 12. 51 Walnut St., Cincinnati, O.

ST. LOUIS.—The honey trade, since our last, has been exceedingly slow on comb as well as on extracted, with rather heavy stocks on the market. We quote as follows: Fancy white comb honey, 13½@14; A No. 1, 12½@13; No. 1, 10@11; broken or leaking honey, 7@9. Choice extracted white clover and Spanish needle in 5-gallon cans, 6½@7; dark and southern honey, in 5-gallon cans, 5½@6; Southern in barrels, 5@5½. Beeswax, prime, 28½ per lb.

R. HARTMANN & CO.,
Dec. 12. 14 So. Second St., St. Louis, Mo.

NEW YORK.—Receipts of late have been quite heavy; and while there has been a fair demand, it has not been up to former year sand stocks are somewhat accumulating, consequently prices show a tendency to decline, and in large lots quotation prices as a rule are shaded. We quote fancy white at 14@15c; 1-lb. white at 12@13c, amber at 11; buckwheat at 10. Extracted in fair demand at 6@6½ for white clover; 5¼ for buckwheat; 50 to 60c per gallon for Southern, according to quality. Beeswax firm at from 28@29c.

HILDRETH & SEGELKEN,
Dec. 7. 265-267 Greenwich St., New York.

CINCINNATI.—Comb honey is now coming in more freely, and prices if any thing have moderated a little. The sales made and prices obtained were: No. 1 fancy water white, 12½@13½; single cases, 14. Extracted is sold as follows: White clover, in barrels, 6½; in cans, 7½ and 8; amber, in barrels, 5¼@5½; in cans, 6@6½. Beeswax, 27.

C. H. W. WEBER,
Dec. 7. 2146-8 Central Ave., Cincinnati, O.

KANSAS CITY.—The honey market is slow, and prices rule very low; fancy white comb selling at $2.25 per case of 24 sections, and amber at $2.00 per case. Extracted is moving slowly at 6½ cts. per lb.

C. C. CLEMONS & CO.,
Dec. 7. Kansas City, Mo.

CHICAGO.—The market is well supplied with all kinds of honey, the demand is of light nature. Fancy comb honey brings 14, but quality as well as appearance is necessary. No. 1 sells at 12½@13; off grades difficult to move at 1@3 less. Extracted choice white, 7@7½; amber, 6@7, with off grades about 5½. Beeswax, 30.

R. A. BURNETT & CO.,
Dec. 7. 199 South Water St., Chicago, Ill.

ALBANY.—Honey market dull; the late cold weather checks the demand, also the honey. We quote fancy white, 14@15; medium, 13; mixed, 12@13; buckwheat, 11@12. Extracted white, 6½@7; mixed, 6@6½; buckwheat, 6@6½. Beeswax, 28@30.

MACDOUGAL & CO.,
Dec. 12. 326 Broadway, Albany, N. Y.

SCHENECTADY.—Market very quiet on comb honey, and we don't look for any improvement until after the holidays. There is some demand for extracted, both light and dark. No change of note in prices.

CHAS. MCCULLOCH,
Dec. 12. Schenectady, N. Y.

DETROIT.—Fancy and A No. 1 white 12½@13½; No. 1, dark, 10@12. Beeswax, 25@26. Market fairly well suppled, and demand a little better.

M. H. HUNT & SON,
Dec. 6. Bell Branch, Mich.

FOR SALE—10,000 pounds choice extracted honey. White clover and amber fall. In barrels, 7c; 60-lb. cans, 7½c.

DADANT & SONS, Hamilton, Ill.

FOR SALE.—10,000 lbs. of fancy extracted honey, clover and basswood. Also 2000 lbs. of the same quality but slightly off color.

GUSTAVE GROSS,
Lake Mills, Wis.

FOR SALE.—Extracted honey. No. 1, from alfalfa, 7½ cts.; No. 2 alfalfa, partly from cantaloupe, 6½ cts. Home and bees for sale. Write me.

D. S. JENKINS, Las Animas, Colo.

FOR SALE.—Fine extracted honey from alfalfa with trace of alsike, white, and red clovers, 6½c per pound, 60-pound cans.

E. F. ATWATER, Meridian, Ida.

FOR SALE.—Extracted honey, clover or basswood, in kegs or cans. Write for price. Sample, 8 cts.

C. B. HOWARD, Romulus, N. Y.

GOOD DISCOUNTS ON EARLY ORDERS
COMPLETE STOCK OF BEE SUPPLIES--LEWIS CO.'S AT FACTORY PRICES
MUTH SPECIAL HIVE THE BEST DOVE TAIL MADE
SEND FOR CATALOG.
WE ARE ALWAYS IN THE MARKET TO BUY HONEY--SUBMIT PRICE.
THE FRED W. MUTH CO.
51 WALNUT STREET, CINCINNATI, OHIO.

FOR SALE.—Fine extracted honey for table use, in 60-lb. cans. Write for prices and samples.
C. H. STORDOCK, Durand, Ill.

FOR SALE.—A few thousand pounds of light amber comb honey at 12c. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, O.

FOR SALE.—Light-colored honey, in barrels, 7c; cans, 8c; sample 10c. Wax wanted.
I. J. STRINGHAM. 105 Park Place, New York.

WANTED.—Comb and extracted honey. Describe the kind you have; how put up, with lowest price for cash. L. H. ROBEY, Worthington, W. Va.

WANTED.—New crop white comb honey. Describe what you have, and state price.
EVANS & TURNER, Columbus, O.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Comb and extracted honey. State kind, quantity, and how put up, and lowest cash price.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—Well-ripened extracted honey to sell again. Give low price and full particulars in first letter.
D. E. LHOMMEDIEU, Colo, Story Co., Iowa.

WANTED.—Clover extracted honey in cans or barrels; send sample, and state quantity, whether in barrels or cans, and price delivered at Chicago or Medina.
THE A. I. ROOT CO., Medina. O.

WANTED.—Buckwheat honey in kegs or cans. Send sample, and state price delivered at Medina, New York, Chicago, or Philadelphia. Mention quantity you can furnish. THE A. I. ROOT CO., Medina, O.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
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WANTED—Beeswax. We are paying 25c cash or 28 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York City, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
THE A. I. ROOT COMPANY, Medina, Ohio.

Convention Notices.

CALIFORNIA STATE BEE-KEEPERS' CONVENTION.

The annual convention of the California State Beekeepers' Association will be held in the Assembly room of the Chamber of Commerce at Los Angeles, January 2 and 3, 1905. Convention will be called to order at 1:30 A. M., Jan. 2. Each member is requested to prepare something for consideration, and all bee-keepers are invited to attend. J. F. McINTYRE, Sec.

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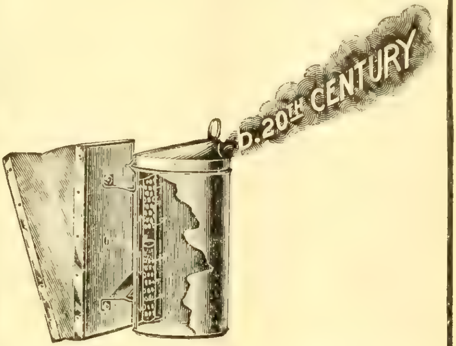

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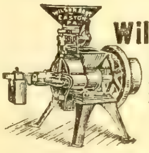
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From 1 to 40 H. P. Also **Bone Cutters**, hand and power, for the poultrymen; **Farm Feed Mills, Graham Flour Hand Mills, Grit and Shell Mills.** Send for catalogue.
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SOLID GOLD PEN

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Grand Special Offer

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Lay this Publication down and write NOW

Safety Pocket Pen Holder sent free of charge with each Pen.

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FENCE STRONGEST MADE. Bull-strong chicken-tight. Sold to the Farmer at Wholesale Prices. Fully warranted. Catalog free
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[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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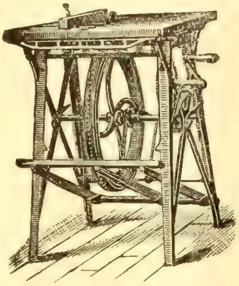

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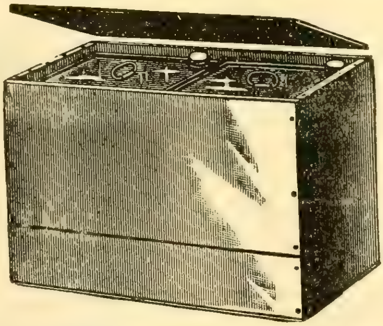

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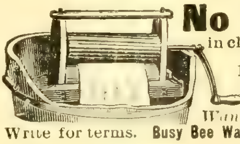

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Vol. XXXII. DEC. 15, 1904. No. 24

Stray Straws

By Dr. C. C. Miller.

THE REPORT of the Central Association of German Bee-keepers for 1903 gives a membership of 37,242, and the present membership is about 40,000. Talk about our National being the largest in the world! But ought it not to be so?

I'VE BEEN READING with much interest the 1904 edition of Simmins' Modern Bee-farm, and a number of new kinks have paid well for the reading. [I have had an opportunity only to glance at this hastily; but I came to the conclusion that it is a practical and interesting work, and I hope to give it an extensive review. I desire to say in this connection that Mr. Simmins was the originator of one or more methods or devices that have been exploited in this country as new.—ED.]

G. M. P. wants to know if there's some way he can deal with sections troubled with worms, other than to resort to sulphur or bisulphide of carbon, only a few of his colonies being Italian, and also asks whether he did right to pick out all the infested sections, supering them, and putting on the Italian colonies to clean up. No; when you have all colonies Italian or hybrid you'll have little or no trouble with worms in sections, and till then when eggs have been laid by the moth in sections there's nothing for it but to use sulphur or bisulphide, *except* the plan you have taken, which, so far as I know, is original and bright.

WHEN THE FIRST installment of Rocky Mountain stuff from the pen of J. A. Green appeared in GLEANINGS, I said, "That's good, but can he keep the pace?" Now that he's been four months on the track I don't see that he's a bit jaded or winded, and he's making just as good time as ever. Yes, Jimmie's all right. [We are very well pleased with Mr. Green's work. His extensive travels over the country, his habits of close observation, and his fearlessness in speaking out his mind, make him indeed a valued contributor.—ED.]

THE QUESTION is raised, p. 1099, whether the food elements contained in honey and not in sugar are necessary. Necessary for what? They are most emphatically necessary for the continued existence of the colony. Not a single larva can be reared on sugar alone, if I am rightly informed. [I arise to a point of order, doctor. We were not talking about whether the food elements contained in honey and not in sugar were or were not necessary for *brood-rearing.* Where the matter came up in the first place, p. 1056, you will see we were talking about whether those food elements were necessary for a *winter* food. See your own Straw on p. 1055. There can not be any possible question but that honey does contain some food elements not in sugar necessary for brood-rearing.—ED.]

ARTHUR C., of the Miller family, p. 1112, raises doubts as to the tenability of the obscure-vision theory holding bees at home two weeks, and the editor says possibly obscure vision and general weakness, together with Dr. Phillips' suggestion that young bees may follow their older sisters by scent. I think you'll cut out that "general weakness" business when you remember the miles and miles that nurse-bees will go with a swarm. Neither will the following-scent nor the obscure-vision theory carry in the case I mentioned, p. 923. Bees five days old, with no older sisters to follow, were strong enough, and could see well enough, to bring in good loads of pollen. What objection is there to the old explanation that bees, either by instinct or necessity, divide up the work according to age? [You are probably right, but I arise to ask how you *know* the bees were only five days old.—ED.]

J. M. H. asks my opinion of the following way of dealing with laying workers: Fasten in a hive one to three frames of hatching brood (presumably with adhering bees) and a laying queen. Next day set this hive containing the queen in place of the laying-worker colony, carrying the latter, after thoroughly smoking, a long distance away, dumping and brushing all the bees on the ground, leaving a small box for any bees that wish to cluster in, returning this to the colony a day or two later. I think the plan would work well if one can afford the laying queen and brood; but it would be less trouble, after forming such a nucleus, to give it a frame of bees from the naughty colony, then another frame a day later, and the rest still later. But it must still be remembered that, nine cases out of ten, the best thing is to break up the colony, distributing the combs and bees to other colonies.

PICKLED BROOD disappeared on the introduction of fresh blood by A. J. Halter, says the editor, p. 1111. Look again; the only fresh blood I find was that which seems to have brought with it the disease. As nearly as I can make out, Mr. Halter thinks a cure came from letting the bees rear a new queen, "all brood hatching before young queens began to lay." [By "fresh blood" I meant the introduction of another queen. In Mr. Halter's third paragraph he tells about "letting them rear queens." This indicated to me that the old queen was taken out. On rereading this third paragraph I am not entirely sure whether Mr. Halter allowed the old bees to have their old brood or not. He says he made shook swarms, putting them on foundation; and I infer now and inferred then when I wrote the footnote in question that he gave brood—namely, "fresh blood" "from various hives." Mr. Halter will please straighten us out.—ED.]

EDITOR HUTCHINSON puts this conundrum: "Suppose six men are to be nominated as candidates, couldn't 'wire-pulling' *elect* one of these men just as easily as it could *nominate* a man? Hardly. Fewer votes are cast for nomination than for election, and it is easier to control a small than a large number. But I think that doesn't meet the case. I object to having as *sole* candidates the two who receive the most votes for nomination. The number of votes for nomination—the informal ballot, if you please—will be much smaller than the number at the formal ballot. Indeed, the number may be very small—so small that not such a great deal of activity in the way of wire-pulling would be needed to secure a nomination; and whether there were any wire-pulling or not it would be better that each member should be entirely free to vote for any one he chooses. I am in entire accord with Bro. Hutchinson when he says: "There ought to be some honorable, *public* method of discussing candidates in advance of nomination." The place for that is in the bee-journals, and the time to begin it, perhaps, with the beginning of the year. Then it might be well to have an informal ballot, and the list published of all names voted for and the votes cast for each. May be something else would be a good deal better, and the whole matter should have full, frank, free, and friendly discussion.

J. A. GREEN, p. 1102, scores eastern bee-keepers for taking for granted that every one has an intimate acquaintance with phosphate-sacks. Please don't come down on 'em too hard, my good friend. If we are to keep quiet about every thing unless we're sure that all the world will understand it, we'll not be likely to tell much. Probably it wouldn't help a great deal to be told the material of old phosphate-sacks, for those who can't get the phosphate-sacks are not likely to be benefited by the knowledge; and those who can't get them don't need to know. But say, Mr. Editor, what are phosphate-sacks made of, any way? [Phosphate-sacks, so far as I know, are made of the same material as any other sacks for holding grain or produce. The material, however, may vary at different times. We found that phosphate-sacks, old burlap or new burlap, will answer the same general purpose for the fuel. We were expecting to catalog this Coggshall fuel in the form of cartridges, but found we could not buy up enough old phosphate-sacks or old burlap to make it advisable to put it up for the general market. New sacking or burlap is altogether too expensive; but every bee-keeper can usually find enough for his own use.—ED.]

THE EDITOR wants to know whether Italians are more immune to pickled brood than other bees, p. 1111. I don't know about pickled brood; but as to foul brood there has been considerable testimony from Australia and Europe in favor of Italians, and a strong word from England is found in the 1904 edition of Simmins' Modern Bee-farm. He says, "Nothing is so disheartening to the experienced bee-master as to see a bee-keeper clinging to native bees in a neighborhood where foul brood is prevalent . . they are helpless in the face of foul brood, and will not even work with their owner when he attempts to cure the malady." [I think there can be no question that Italians are more immune to black brood than black bees. The evidence that you present from across the water shows that they can also resist foul brood better. The natural assumption would be that they could also better withstand pickled brood. Why this should be I am not able to explain unless because they would be less inclined to rob. Years ago, when we were Italianizing from a lot of black bees, I noticed that the "black rascals" as we called them were much more inclined to steal than our yellow bees. Possibly this might account for their greater susceptibility to contagious diseases.—ED.]

IT WAS DECIDED years ago, says the editor, p. 1104, that the slight gain from mid-winter flights of cellared bees didn't pay for the trouble. That assumes that there was a slight gain, and that was not the belief. It was the belief that such flights were a damage, making the bees uneasy afterward, although why a mid-winter flight should help outdoor bees and hurt cellared bees was never explained. I've experimented a little for the past winter or two, but can't say positively whether winter flights for cellared bees are good or bad. I'm on the fence, and I think, Mr. Editor, that very few are on your side of the fence. What was the date of your carrying out, that you thought worked so well? [The discussion in regard to the advisability of taking bees out for mid-winter flights, and returning them, took place along about the time I was coming out of school, and after I had begun to take editorial charge of this journal. It naturally made a strong impression on my mind. The articles were scattered over a long period of time; but my recollection is that the general consensus of opinion was to the effect that there was a slight gain, but not enough to warrant the expense and trouble. But whether a slight gain or not, that does not matter. We both agree that the general sentiment was against it. I am very well satisfied that this conclusion, at least for some localities, was entirely wrong. If it is a good thing for outdoor-wintered bees to have a midwinter flight (and I do not think there is any one who will dissent from this), it follows that it must be beneficial for indoor bees, provided the weather conditions are such as to permit it. In your locality, and in that of Doolittle, and perhaps in a majority of places where there is continuous cold from fall till spring, I do not see how it will be practicable to give such a flight. But this would not prove that such cleansing would not be beneficial if it could be had. In our locality, and in many others, there are occasional warm flight-days either in February or March.

Now in answer to your question, we give our bees one such flight, sometimes two, along in February if we can. If there is no warm day suitable, we give it to them in March. The point I desire to make is this: Where the winters are not so extremely severe, permitting flight days, the bees, because of the warm weather, become uneasy in the cellar, overcharging their intestines, and therefore they must have a cleansing. I do not see how there can be a conflict of opinion if we take into consideration the matter of locality. But we will take for example the case where the winter is severe. Suppose in your case, in February you have a warm balmy day. Now let me strongly urge that you carry half of your bees outdoors for a flight and take them back. If you do not notice any improvement in this half in the way of added quietness and a disposition to stay in the hive, I will buy you the best silk hat I can find in Chicago. One more point: We do not begin to have the number of dead bees on our cellar bottom that we find in the bottoms of some cellars where no midwinter flight is allowed, or we will say possible. I am coming to believe that it is all wrong to conclude that an inch of dead bees all over the cellar floor is a mass of superannuated bees that would have died any way.—Ed.]

Pickings from Our Neighbors' Fields

By "Stenog."

> To wreak its vengeance on a man,
> A bee one day engaged:
> It gained its point, but lost its point,
> And died in misery.
>
> —*From the French.*

* * *

The editor of *Le Rucher Belge* inveighs strongly against the use of tobacco in smokers, owing to its bad effect on bees. He says, backed by Mr. Weygandt, in the "Imkerschule," "If you are not willing to renounce tobacco in favor of your bees, do it in the interest of your own health."

* * *

If there is any one plant that it will pay to raise for honey alone it is raspberry, especially the red kind. The quantity of honey yielded by it is great, and for quality it is at least equal to any ever tasted. It stands in a rank all by itself. But when we add to these desirable characteristics the great abundance of refreshing fruit it produces, and on almost any soil, we may say it certainly deserves all the attention it gets. This seems to be the opinion on the other side of the ocean too.

* * *

Le Rucher Belge says certain communes in Belgium think seriously of levying a tax on bee-keepers who move their bees to such communes to get the benefit of a honey-flow. This seems to be strongly opposed by others, on the ground that bee-keepers are a great benefit to such localities, as they necessarily have to hire considerable help there on arrival, besides spending a nice bit of money there during their stay. These advantages, they claim, would all be lost if the bee-keepers were taxed, as then there would be no incentive to go to such places.

* * *

Considerable honey is produced in Europe. According to *Handels Museum* the annual crop from that continent, leaving out Italy, is as follows, together with the number of colonies kept. I rather suspect that European statistics are far more reliable than those obtained in the United States. The figures stand:

Germany leads off with 1,910,000 colonies and 20,000 tons of honey; Spain has 1,690,000 colonies and 19,000 tons; Austria, 1,550,000 colonies and 18,000 tons; France, 950,000 colonies and 10,000 tons; Holland, 240,000 and 2500 tons: Belgium, 200,000 colonies and 2000 tons; Greece, 30,000 colonies and 1400 tons; Russia, 110,000 colonies and 900 tons; Denmark, 90,000 colonies and 900 tons.

* * *

Our old friend the *Canadian Bee Journal* has not cut as much of a figure in these columns lately as its merits deserve. Its pages are well filled with matters of interest to all bee-keepers, and Mr. Craig is doing all he can to merit the support he receives. As that is the only bee periodical in the English language, north of the United States, it should have a good support. This leads me to ask what has become of its founder, Mr. D. A. Jones, who shone so brightly in the constellation of the Bee-hive some twenty years ago. Just 25 years ago he and Prof. Frank Benton were in Medina preparatory to their long trip to Asia in search of new races of bees.

* * *

A writer in the *British Bee Journal* says:

> Having read about birds, when catching bees for food, carrying off drones and not workers, my interest was aroused in the question of birds and bees, and I shot several birds seen flying about my hives one day when bees were on the wing, but none of the birds killed (including swifts, swallows, and martins) showed any trace of having captured bees, either workers or drones. I found lots of small flies, Twice this year I have watched the common house sparrow snapping up bees. I drove off the little marauders before giving them time to devour their prey, and in each case the bee's head had been bitten off by the bird before eating the body.

Those same sparrows are a national nuisance here; and how to destroy them is the question.

* * *

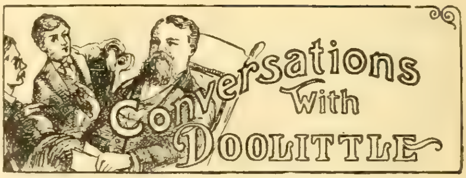
The *Bee-keepers' Review* for November is a fine issue, and has, among many other good things, an article on the sale of honey, by C. F. Smith. From it I make the following extract which is full of good ideas:

> Not every person likes honey, but there are enough in every 5000 to consume from 15,000 to 20,000 pounds of *ripe* extracted honey each year; but you have got to *take it to their doors*, show them what you have, and, if necessary to remove a lot of false impressions, let them sample it. It's the only way to sell large amounts. You can't depend on mail and telephone orders for selling extracted honey from advertising. Nearly all people are prejudiced against extracted honey, from having eaten an unripe or improperly handled article. I want to impress it upon producers that, although they *have* sold lots of unripe honey, they can't *always* do it. I myself have bought honey by the ton of men who *can't sell me any more.* The best honey I ever bought had to remain in the combs until I got the cans empty from a former lot and sent back. Such honey is worth five cents a pound more for my table, or my trade, than is half-capped stuff.

* * *

A French judge reversed the decision of a local magistrate who fined a bee-keeper because his bees were said to injure the grapes of his neighbor. Here is the decision of the judge, and his reasons for reversing the decision and compelling the plaintiff to pay all the costs of the suit. I am indebted to the *British Bee Journal* for the translation, as we do not get the paper it was copied from. It is worth preserving, for the judge's reasoning was sound.

> Whereas, first, it is demonstrated scientifically that—differing from wasps and hornets—the mandibles of bees are not constructed to enable them to perforate grapes; that they are not able to gather the juice except in those berries that are already perforated by birds and insects, or split by the temperature; and, whereas the bees could not have caused the appreciable damage; that, in fact, on the evidence of the plaintiff, his are early table grapes, and not those intended for fermentation; that in any case it is admitted that grapes are not melliferous—that is to say, that bees are not eager to collect from them, there is no proof that the damage done to the complainant's grapes had been, or could have been, caused by the bees, but, on the contrary, might have been done by birds and insects, etc.



WHAT TO DO DURING WINTER.

"Fine evening for a winter night."

"Yes, Mr. Johnson, it is a nice night after a pleasant winter day. In fact, our fall has been an unusually pleasant one for this portion of New York State. Have you your bees all ready for winter?"

"Yes, as I consider it my bees are all fixed for winter, they being all nicely tucked away in chaff hives, each having from 25 to 40 pounds of nice sealed stores. Having them thus fixed I thought I would call on you a little while to-night to see if you thought I could do any thing along the 'bee-line' till spring."

"You have heard the old saying, 'In times of peace prepare for war,' have you not?"

"Yes; but I do not wish to make sections nor prepare many hives till I know how my bees will come out in the spring; for if they die, as they did last spring, I shall want no more hives and sections than I have on hand now."

"Well, I am not sure you are right on the point of having hives enough; but admitting that, for the time being, you can do much along the bee-line otherwise."

"How is that?"

"To the one who expects to succeed, these long winter evenings give the time in which to gain knowledge along the line of the pursuit he has chosen in life, and in no business engagement is this more imperative than where the culture of the bee is the chosen occupation."

"How can I gain such knowledge?"

"I know of no way this can be done to any better advantage than by reading the bee literature of the day. From such reading the mind is to be stored with useful knowledge which can be put into practical use as soon as the season of 1905 opens."

"Was that the way you commenced?"

"Yes. When I commenced bee-keeping I was greatly benefited by the writings of E. Gallup, L. L. Langstroth, M. Quinby, A. I. Root, Adam Grimm, and many others of those early writers on this subject. The winter evenings were not long enough, it almost seemed, so interested was I in what they had to say on this subject."

"What was the result of your putting what you read in practice?"

The first year (the poorest I have ever known) resulted in 12 pounds of comb honey and one swarm, from the two I purchased to commence with. The next year I obtained 25 lbs. of surplus from each colony I had in the spring, on an average. At the end of the fourth season I chronicled an average of

80 pounds of comb honey as the average surplus for each colony in the spring, while at the end of the eighth season my average yield per colony was 166⅔ pounds. During these years I had read, studied, and practiced all of my wakeful hours about bees, having great fun and enjoyment in doing the same, and this was brought about by those winter evenings when I began to read up on the subject. Many and many have been the nights when I was awake from one to three hours planning how to accomplish some result I desired to achieve in regard to the practical part of apiculture, which, with the help of what I had read, caused me to accomplish what I had sought."

"Well, that sounds good. But what shall I read?"

"During those years, and all which have passed, I have found that, if I would succeed, as far as possible I should read mainly those books and articles which come from the pens of practical bee-keepers — those whose ideas come from their daily work among their bees, rather than from theorizing while sitting at the writing-table, for the former are the ones who make a success of their calling, and tell just how they do it."

"I think that is right."

"Yes, certainly. If you wish to learn farming, to whom do you go — to the man whose farm is allowed to grow up to weeds and briers, with buildings unpainted and fences down, or to the man who produces good crops each year, has his fences up in good shape, with his buildings in attractive style and in good repair? To the latter, of course; and just so should you do in bee-keeping."

"But all do not write for the papers, do they?"

"I am well aware that many of our most practical bee-men do not write for publication, and for this reason we can bring in visiting during the winter as another help along the line of our qualification."

"But would not these practical men consider it a bore for a novice to visit them and ask questions?"

"Very likely, if we confined this visit wholly to asking questions for our benefit. When you go to visit any bee-keeper, make it a *visit* by imparting something as well as receiving something. And don't try to get too much at once, for a little well learned is much better than having so many things come before you that you do not remember any of them. Then there are bee conventions we can attend, which are mainly held during the fall and winter months, and for the special purpose of gaining knowledge. All of these things are great helps to us, and should be eagerly sought, as they will be if we have a natural qualification for the calling we have chosen."

"I think I agree, for the one bee convention I have attended I enjoyed very much. But what about your thinking I was not right about not making more hives, etc., this winter?"

"I can not help thinking you are making a mistake here, as many have done before you."

"How is that? You would not advise making up a lot of hives till I am sure I shall need them, would you?"

"The question, it seems to me, should be, 'Am I to continue in the bee business? If so, then I must be prepared for a *full* honey-harvest from the number I have now; otherwise that *full* honey-harvest may come and find me napping.' "

"But suppose my bees should die."

"I will answer that by asking, 'Suppose they should *all* live?' When you found this out in May or June, you would order supplies. The supply man would be 'full of orders' at that time, and you might not get them till the harvest was on, and you too busy to make them. No, no; the time to do these things is in the winter, then you will be *sure* in the matter; and if your bees should happen to die, the hives will be ready when you want them; for if you are to stay in the business you will want them some time."

"I guess that is right, after all. How many do you calculate for?"

"My plan has always been to prepare hives to the number I wish to increase my colonies to, should the coming season be the *best*, and sections to the amount of 125 pounds for each colony I have in the fall."

"And do you do this as early as this?"

"Yes, I do all of this preparing during the winter months, getting every thing all in perfect order before the season opens, so that, when the time for active labor arrives, I shall not be handicapped by not being in readiness for any 'downpour' which may happen to come."

"Well, I must be going now. These thoughts are new to me, but I guess they are along the right line after all."

Editorial
By E.R. Root.

THERE was a large and enthusiastic convention of the Minnesota State Association at Minneapolis, Dec. 7 and 8. I will endeavor, in our next issue, to have a report of it.

SIDELIGHTS FROM THE ST. LOUIS CONVENTION, FOOD FRAUDS AND FOOD OFFICIALS.

ANOTHER paper that was listened to with marked attention was one by Prof. E. N. Eaton, Pure-food Chemist, of Chicago. It was a matter of pride with him, he said, that he had attended bee-keepers' conventions regularly for ten years; and although he never owned a bee in his life he had received a great deal of benefit from every convention he had attended—not alone as a chemist, but he believed he had been brought nearer to nature, where man gets his best enjoyment. Every food chemist should become acquainted with the industry connected with any food on the market. Unless he did he could not correctly interpret his own analysis. If some of the food commissioners and chemists had attended some of our national meetings they never would have made the statements they have made, founded as they have been on error. He desired to speak to the convention about adulteration which did not exist; of the crimes committed by food commissioners and chemists in the name and pay of the people. He illustrated the statement by referring to incidents and facts which came under his observation. First in England the belief was so widely spread that calves' brains were used to adulterate milk that tests to detect the frauds were given in all the early text-books on chemistry. Chalk in milk and sand in sugar were other supposed adulterants, and were harped about by the editor of the comic magazines. All the old food laws contained a long list of impossible things found in candy, vinegar, and sugars; and every once in a while a newspaper breaks out about deaths produced by eating poisoned candy. Then there is a widespread falsehood about the wholesale adulteration of honey produced by bees feeding on glucose; and the still worse fraud of the alleged cheating of the bees entirely and manufacturing honey, comb and all. One commissioner after another would contribute a sensational mass of nonsense to his local press, and the canard would travel from ocean to ocean. While a food commissioner was not expected to be a food scientist, he would very often put his foot into it.

In answer to a question as to the cause of these mistakes, he thought first it was a desire for publicity; second, to alarm the public to such an extent that it would demand more of those fool food commissioners.

GROCERS RESPONSIBLE FOR THE COMB-HONEY LIES.

At one of the discussions the fact was brought out clearly that many of the grocers, for the sake of publicity, and to shock their hearers, would tell the old, old story about manufactured comb honey, even going so far as to show samples of dark-looking combs that were manufactured, which they would sell cheap, while the better-looking article was genuine bees' honey from clover and basswood. Some would reverse the order, and say that the beautiful white combs were manufactured, while the dark ones, soiled and dirty, were the genuine product of the bees. It was generally thought that bee-keepers should be looking after the local grocers, and give them a dose of facts.

THE NATIONAL BEE-KEEPERS' ASSOCIATION NOT INCORPORATED.

During one of the sessions when there was talk about the Association beginning a damage suit against some of the papers and magazines that will not retract when they have published the usual comb-honey lie, the point was made that no such action could be begun by the Association, owing to the simple fact that it was not incorporated. Mr. France, the General Manager, referring to this, stated that, when he wrote to one of the publications, intimating that an action might be begun, received from the offender a letter, asking him if the Association he represented was incorporated. He was obliged to confess it was not; and the result was that no retraction was made, for the purveyor of the lie knew perfectly well that the National could not be recognized by the courts. The matter was referred to a committee, and probably it will come before the Board of Directors.

RECOMMENDATIONS OF THE GENERAL MANAGER.

One of the busiest men at the National convention was General Manager France. He looked worn and tired, and certainly he was. He had been working almost night and day, attending bee institutes, performing the duties of a foul-brood inspector of his State, and looking after the interests of the National. The duties of the Association were getting to be so arduous that he hardly had time to be at home with his family. His father, now past 80, was not able to superintend the work at home, and the two little boys, present at the convention, had the whole care of the house, between 400 and 500 colonies of bees, and 20 acres of fruit land inside of the city, on which he pays $60 taxes. The result of all this was that he had had no time in which to prepare a formal report, and he therefore begged the indulgence of the convention in giving the report offhand.

He felt that the Association was now on a living basis; that, while it had only just begun, there was a grand future before it. The insurance part of the Association, as he put it, gave him a great deal of anxiety and careful study. Hours when he should have been at rest he spent with attorneys who have been kind enough to give him their advice gratuitously because he really felt there were no funds which he could use for this purpose without a vote of the Directors.

There had been a good deal of trouble between bee-keepers and their neighbors, not because of the bees, but through their different affairs; and finally the bees were brought in connection with it, with the result that their owners got into a quarrel, then step off and say, "I belong to the National Bee-keepers' Association, have got inte trouble—you help me out." He was sorry that such conditions had come about, for he hoped that the day had dawned when we would, to use his own words, "discontinue that, and allow the Association to develop in these new phases of fighting adulterated honey, and creatting a greater uniformity of market among bee-keepers over all the world. There are things of world-wide interest we ought to be doing instead of these smaller and more unimportant things." As Mr. France said these words I applauded; and some seemed to wonder why I alone should applaud. Because I must confess I was sorry to see that the Board of Directors had seemed to favor the idea that the "suppression of adulteration" . . "is the secondary object of the Association" . . "that it must not be expected to neglect or jeopardize the prime object of the Association to protect and defend its members in their lawful rights." I believe the time has come when the Association should devote itself to larger things more than it has ever done before for the suppression of adulteration, and fostering all worthy attempts to secure pure-food laws in the various States; and, when once secured, to bring about their enforcement. I don't see any thing in the constitution that implies the defense feature as of more importance than that of the suppression of adulteration.

One case Mr. France gave to illustrate his point to show that some of these troubles between neighbors might be avoided. I can do no better than to quote his own words, for I think they are golden:

> For those of us who live near neighbors, and our bees, in the spring, perchance, should spot the neighbors' clothing, how nicely a little donation of honey, friendly given, or paying for the relaundrying of the clothing, would settle all that grievance! If our bees go to our neighbors' trough or place where the water is obtained, and they are an annoyance there, sweeten that away with a little kindly donation of honey. If our bees annoy our neighbors in a garden or upon the near highways, you know they can be sweetened in the same way. Oh! I have gone to various places, and have compromised it without any litigation by just bringing the two parties together and having a little honey and new biscuits. Keep together; compromise; keep out of court; be brothers hereafter.

Every member, as he sends in his dollar and his vote, ought to read over the above words. Why should a part of that dollar be wasted—worse than wasted—when a compromise can be easily effected? Mr. France showed how he had in numerous cases gone to the contending parties and fixed up matters himself without any litigation. Then he added, "These people might just as well have done this themselves, and saved me the time and expense in the first place."

The General Manager said he was willing to do almost any thing in his power; but he thought bee-keepers might render him very efficient aid in one way and another. The Association issued a little pamphlet on bees and horticulture for the benefit of those receiving injury by people spraying fruit-trees while in bloom. This had become alarming in some parts of the country, and many apiarists suffered severely. In several instances the little pamphlet had produced the desired effect.

There was another pamphlet, he said, that has been issued by the Association, and that one was in reference to decisions of the courts and laws relating to bees in the different States. These were all codified so as to be convenient for ready reference.

In closing, Mr. France desired to express his appreciation of the noble way the bee-keepers had stood by him and the organization. He felt it was now on a basis of permanency. There was not very much money in the treasury—$1115. At the close of his remarks the General Manager was most heartily applauded, and was extended a vote of thanks besides. This was carried by a rising vote, and there was not a member present but felt that he had in Mr. France a most faithful and efficient officer.

SIDELIGHTS FROM THE CHICAGO-NORTHWESTERN CONVENTION.

NEXT to the National Bee-keepers' Association meeting, this probably, in general attendance and enthusiasm, would rank first. Chicago is the center of a large number of local bee-keepers, for sweet clover has made the business possible in and about the city to such an extent that there are hundreds of bee-keepers within but few miles of the great city. It is accessible over all roads, and this makes it a good convention place.

Bee-keepers this year assembled at the Revere House in what is known as the "lodge-room." Mr. York is the president; and the old feature of having a question-box and nothing else seemed to hold its own. Dr. Miller has often said that a question-box convention was more profitable than one devoted to the reading of long papers. A good deal, of course, will depend on the president and the bee-keeper. But certainly the question-box feature was a success at the Northwestern.

One question discussed was this: "Where shall the thermometer be placed in the cellar?" Dr. Miller, in reply, said that it should be located centrally, and always kept there. To put it in one place at one time and then move it to another would make it impossible to know of the absolute rise or fall of the temperature.

Another question was, "What are the advantages of the shook swarm?" Mr. Hutchinson thought there was no advantage except that it put the swarming at a time when the bee-keeper could take care of it. He urged that the colonies be shaken only when the bees were making preparations to swarm.

Another question was, "Shall we use the term *shook* or *shaken* swarms?" Dr. Miller urged the dropping entirely of the term *shook;* but some of the other members seemed to favor the monosyllable as being more expressive. Mr. Abbott mentioned the fact that we are continually coining new words to describe new devices and new methods; and as the word *shook* had come to be quite generally understood and accepted by bee-keepers, why not use it, even if it were not technically grammatical?

"Is bee-keeping suitable for women?" called forth a number of affirmative responses from the ladies present. President York asked Miss Wilson, who had the floor, "Is it convenient to have a man around to do some of the heavy work?" Instantly came the rejoinder, "Yes, *if* you can get one." Laughter.

"Do bees freeze to death?" was a question that elicited quite a heated discussion.

Mr. Abbott insisted that bees did not *freeze* to death if they had plenty of stores—that they *starved* to death. Several took issue. Instances were cited showing how bees seemed to be stiff and cold, and yet when warmed up in a living-room they would be as lively as ever. Many seemed to think that the cold weather caused the bees to consume too much to keep warm, surcharging their intestines, and this in turn resulted in dysentery in the spring.

The matter of foul brood received a large share of attention. The foul-brood law of Illinois was not effective, because it did not provide a penalty. An inspector might visit an apiary; and if the owner of the bees was disposed to carry out the instructions, well and good. If not, nothing could be done. There seemed to be a general feeling that the law should be amended so as to give the inspector power to carry out his orders. With the idea of influencing legislation, the Chicago-Northwestern joined the Illinois State Bee-keepers' Association in a body, thus greatly swelling the membership. The two organizations, under the leadership of the State Association, will doubtless make a strong pull for a more effective law than is now on the statute-books. General Manager France was present, and gave an excellent address on how to recognize foul brood in its very early and later stages. Mr. France being one of the lecturers sent out by his own State to talk at farmers' institutes is a trained platform speaker. He has a way of making all his arguments clear and forcible. He is certainly a master of the foul-brood subject.

Prof. E. N. Eaton gave an address on the general subject of honey, taking up somewhat the same line he did at the St. Louis convention. Near the close of his address he mentioned the fact that the Department of Agriculture, through the Bureau of Chemistry, was asking for suggestions as to the correct definition of honey. The definition he gave was something like this: "The nectar of flowers or exudations of plants gathered by the bees and stored in combs." He went on to show that the bees inverted or changed the nectar, making it into honey. He would limit the definition to "nectar of flowers transformed, and stored in the combs by honey-bees." This raised considerable discussion. Some said that their bees gathered honey-dew some seasons more than others. If the presence of honey-dew in honey were to be classed as an adulterant, then a good deal of their honey would be classed as impure. Mr. N. E. France very plainly stated that, if this definition were accepted, then he would have to go out of the business; for last season a good part of his crop had honey-dew in it, but not enough to hurt its flavor; indeed, some of his customers liked it. "Now, then," said he, "if honey is limited to the nectar of flowers only, my honey is adulterated; and if analyzed I should have to be fined and imprisoned for selling adulterated goods." Considerable feeling was aroused, and many of the bee-keepers expressed the hope that the definition might be made broad enough to include the exudation of plants, honey-dew, and nectar of flowers.

On the evening of the 30th some new stereopticon slides were thrown on the screen, illustrating bee-keeping in its various phases, and besides this a moving picture of a swarm of bees was thrown on the screen. The pictures represented the opening and closing of hives, picking up handfuls of bees, hunting for the queen, dumping swarms, and shook swarming. Some bees were caught, and confined between two pieces of glass, and thrown on the screen. During the process of catching, several of these lost their stings. The way the bees pulled at the stings, stuck out their tongues, etc., proved to be quite interesting to the veterans as well as to the beginners present.

THE IMMENSITY OF THE BEE-KEEPING INDUSTRY AS A WHOLE.

Elsewhere in this issue we produce some photographic views of The A. I. Root Company's plant, taken during the last four or five months, some before recent enlargements. It is, perhaps, well that the bee-keepers of the country should know something of the immensity of the bee-keeping industry, including not only the production of honey itself, but the manufacture of supplies for the same. Some time ago I made an estimate, based on the exact knowledge* of the number of sections that are made annually, that the amount of honey produced, both comb and extracted, would make a total aggregate of from 100 to 125 millions of pounds, worth from 8 to 10 millions of dollars. Very recently one of the editors of one of our bee-papers figured out from some government statistics that had then just been issued that 6667 carloads of honey were annually produced in the United States. It is a little significant that my own figures, arrived at from an entirely different source, and in a different manner, should show that, on a conservative estimate, there were 7000 carloads produced, or almost the same as represented by the government statistics. But it is reasonably certain that the above estimates are, at the present time, away below the actual mark, and that we should be safe in figuring on a total output of 10,000 carloads. If we estimate 40 feet between the bumpers of the cars this would make one continuous train 75¾ miles long; but for fear the average public would not believe these figures we have put the estimate at the very conservative figure of 50 miles. The mere fact that apiculture is making rapid strides in foreign countries—even more rapid than it is in the United States—goes to show that the little bee, in spite of its insignificant size, is, like the little Jap, making its influence felt in the world. It thrives in every climate except where there are arctic snows to cut off all sources of nectar.

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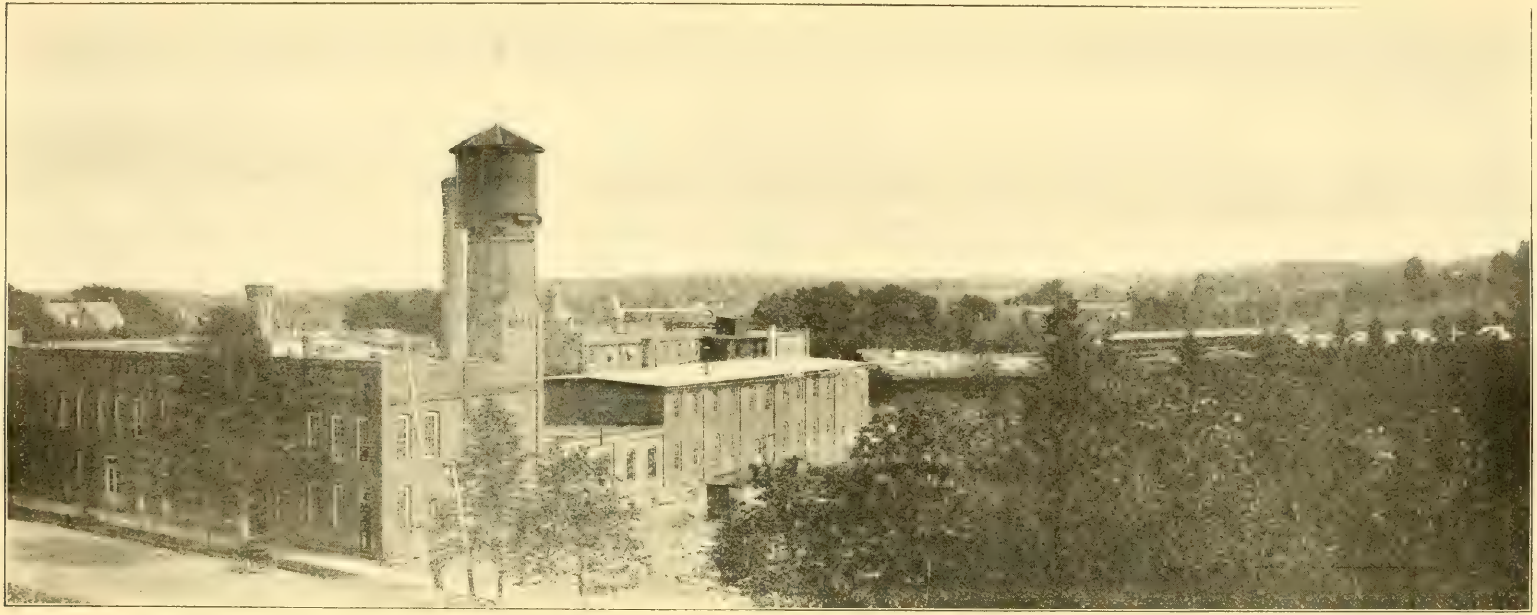
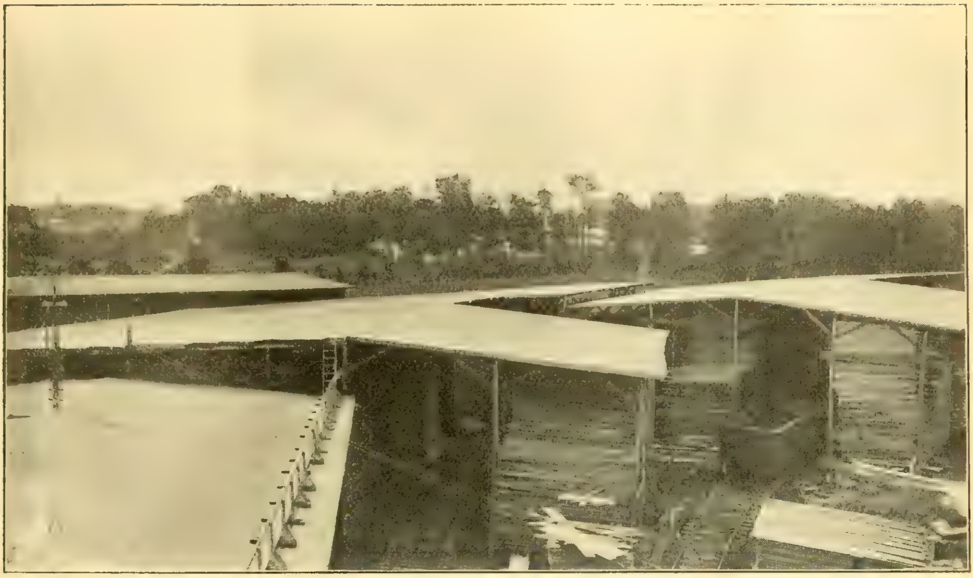
* This was secured through Dr. Miller, who, several years ago, wrote and secured the total output of sections from all the factories in the United States.



THE A. I. ROOT CO.'S BEE-HIVE-MANUFACTURING PLANT, VIEW LOOKING FROM THE NORTHWEST.

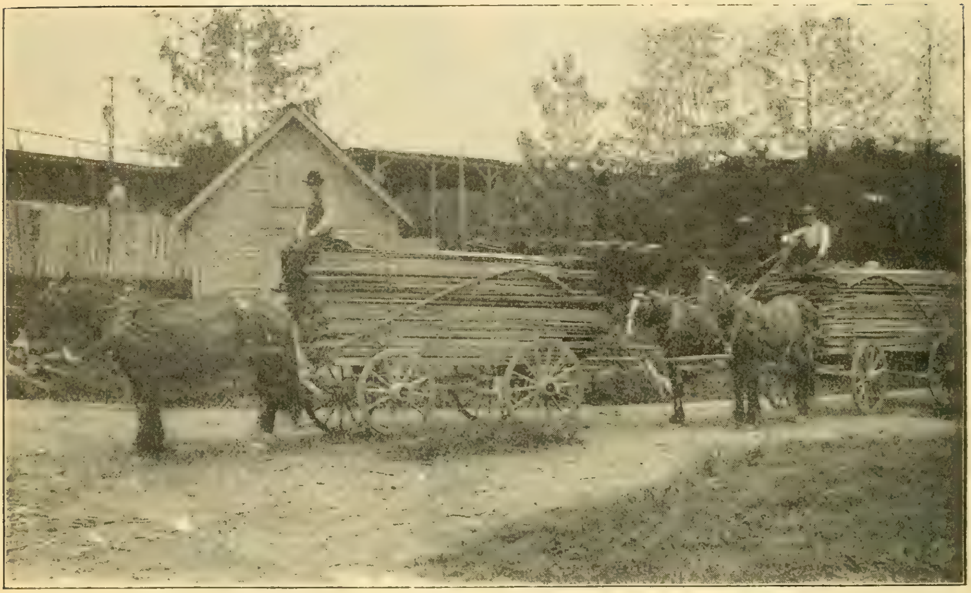
This illustration, with the others in this issue, are produced to give the reader an idea of the magnitude of the bee-keeping industry of the United States. So much honey is, in fact, produced every year—enough at a conservative estimate to make a solid trainload 50 miles long—that the average person unfamiliar with the possibilities wrapped up in so small an animal as the bee naturally supposes that much of the product masquerading under the name of honey must necessarily be glucose or other cheap syrup. Nearly a year ago we gave a set of pictures showing views of the G. B. Lewis Company's hive-manufacturing plant. These, together with the illustrations given here, will speak eloquently of the growth of the bee-keeping industry in the United States. These two with the other manufacturing plants over the country represent anywhere from one-half to three-quarters of a million dollars of investment. In the case of the present illustrations the views represent a working capital of $300,000 where nothing but bee-keeping specialties is manufactured. If there were not millions and millions of dollars taken from the bees annually, such plants could have no reasonable show of continued existence.

VIEWS OF A PART OF THE A. I. ROOT CO.'S LUMBER-YARDS.

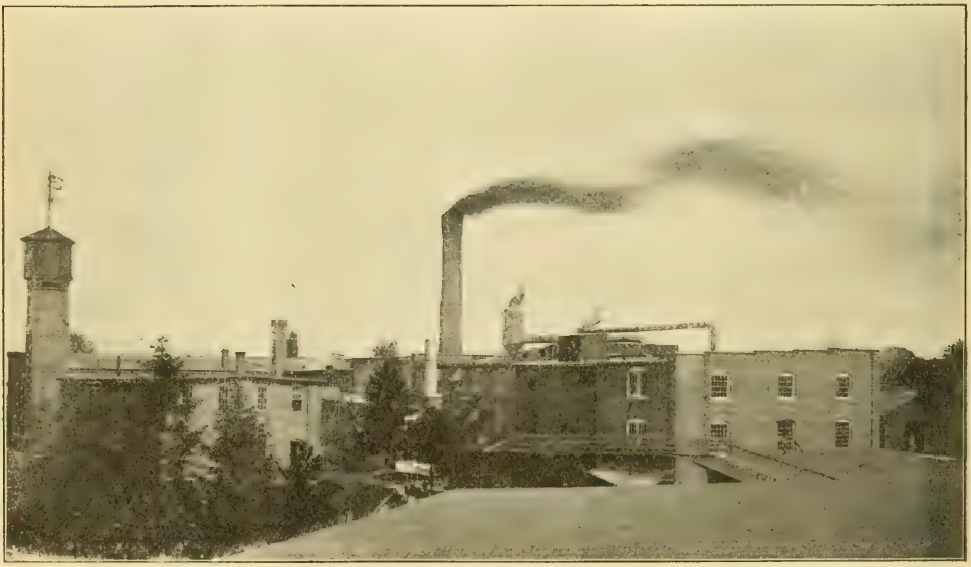


THE A. I. ROOT CO.'S LUMBER-SHEDS WHERE AN AGGREGATE OF $50,000 WORTH OF LUMBER IS STORED AT ONE TIME.

PART OF THE A. I. ROOT CO.'S LUMBER-YARDS.



BASSWOOD LUMBER AS IT COMES IN FROM THE FARMERS.



A PARTIAL VIEW OF THE A. I. ROOT CO.'S MANUFACTURING PLANT, VIEW LOOKING FROM THE SOUTH.

GENERAL CORRESPONDENCE.

DOES CLOVER WINTER-KILL?

How to Know When we shall Have a Crop of Clover Honey; a Valuable Article.

BY VIRGIL WEAVER.

Mr. Root:—I wish to write a few lines on a variety of subjects. The first is white clover. This is the main honey-plant east of the Rockies. Strange to say, there is very little known about it. I do not mean by the small bee-keeper, but by the "big uns" as well as the little fellow of half a dozen years' experience.

In a recent issue, you, Mr. Editor, were commenting on the prospects of a honey-flow in Wisconsin, and said that they were not very promising—in the southern part of the State white clover had winter-killed. That is something white clover does not do. I will tell you why. Any year preceded by a normal amount of rain will give a flow of white-clover honey. It matters not how hard or how long it freezes, how often it thaws or how much snow falls to protect the clover. When May comes with her showers and sunshine, the clover will come smiling to greet the anxious bee-keeper.

I formerly lived in Kentucky, and was afraid to cross swords with you Northern fellows, for I knew our winters were not as severe as yours, so I kept still; but now that I am in a zero State, and I find the same results here as in Kentucky, I am going to "butt in." I will take the past winter for an example, which was one of the coldest on record in Iowa — zero for weeks at a time, and not a bit of snow to protect it. What is the result? An 80-lb. honey-flow, all from white clover.

Now, there are two sides to this "hoecake." I will take Kentucky for an example. We shall find a different result. The thermometer never reached zero there the past winter, but the white clover winter-killed there, so some of the bee-keepers say, and they have had no honey-flow there this season. You also said it was too wet during June for honey south of the Ohio River. Now, I can tell you why the clover winter-killed in Kentucky also. Why? It was too wet in June. Neither the wet June nor winter-killing had any thing to do with the failure. What then? Right here lies the secret. The rainfall, as observed by the Lexington, Ky., station from May 1 to Nov. 1, 1903, was nearly 11 inches short. No new clover started at all; no new roots on the old 1902 crop to prevent its dying out in the winter of its own accord, freeze or no freeze. That's what it will do every time.

There is one exception in regard to the old clover, and that is this: If the rainfall in August, September, and October is excessive, this old clover will start new roots that can withstand any winter. But without these rains the old clover that has matured its crop of seed will die out. Then if there are no new plants that were started in the early spring, the white-clover flow is a failure, not because of winter-killing, but because of drouth.

You will observe a little contradiction in some of the above; that is, that clover winter-kills, and that it does not winter-kill. I will explain, and also tell the bee-keeping public when to expect a white-clover honey-flow. In the first place, a white-clover seed is very hard to germinate. Conditions must be very favorable for the little fellows to begin their battle with life. If in the spring, it must be very warm with plenty of moisture. There must be no crust on top of the ground. The thermometer must touch the 70's — from 80 to 90 is all the better. With these favorable conditions for a week or ten days you will find very small white clover-plants in every little vacant spot in the pastures. If the rains continue until July 1 you can rest assured that the next year will give some white-clover honey; for by the time these plants are two or three months old they are able to withstand any kind of weather. If the rains continue through the fall months, all the better. The most of us know that these young plants bloom but very little the first year — not enough to make a honey-flow. There is an exception: If conditions are favorable for plant-growth until July, and July is hot and dry, setting these young plants back, or producing a dormant state for a few weeks, then good rains come in August, making a strong plant-growth again, these young plants will bloom in September to a very great extent, making the pastures almost white; but without this July drouth to produce a dormant state, there will be very few blossoms.

This brings me down to where I differ with you, Mr. Editor. I say it matters not how cold it gets nor how often it freezes and thaws through the winter. These young plants will be there the next June. Do not jump in here, you big fellows, and saw me up, because you can not do it.

I will now tell you why the impression prevails that white clover winter-kills. We will now take these plants through the second year. If conditions are favorable in the spring for plant-growth, there will be a profusion of blossoms in June, and a good honey-flow. If the rains continue after the honey-flow, these same plants, as I said before, will take new roots that will withstand any winter. If you have no fall rains to speak of, these old plants will die in the winter, cold or no cold. All dry falls are not followed by honey failures, though, because it may be favorable for plant-growth in the spring and early summer, and make a fine growth of young plants. These young plants can withstand a dry fall and a hard winter also, and make a good honey-flow the next June, as was the case in my locality in 1897. The fore part of 1897 was favorable. From July 22 until November 1 there was not ¼ inch of rainfall. In 1898 I averaged over 100 lbs. per colony of white-clover honey; so you see that, to have a honey-flow this year, we must have had a favorable time to start a lot of young plants the year before.

The winter has nothing to do with the amount of white-clover blossoms we have. It all depends upon the amount of rainfall that we have in summer.

Now I want a few words on what causes large and small honey-flows, and when we must expect a bumper crop or a moderate one. I will take four seasons in Iowa to illustrate. The year 1901 was about the driest on record here. The result was, that in the spring of 1902 the pastures were bare in a great many places. Spots a yard square would not have a sprig of grass on them, with plenty of rain in the spring of 1902, also good warm weather. The white clover filled all of these vacant places. The rains continued all season—in fact, were excessive. The result was that, in 1903, there being no old plants in the way, these young plants outdid themselves. It took plenty of rain, though. Now for a moderate honey-flow, or an average one.

You will find that the bumper crop will be secured the second season after a severe drouth. Then as old plants (that is, plants two years old) will not bloom as profusely as a plant one year old, the third season you may expect only a moderate honey-flow, and the flows will be moderate until the drouth cleans out all the old plants, and you begin over.

Washington, Ia., Aug. 29.

[You have evidently given this subject careful study. If your rule or rules will work out in all parts of the country it will mean much to bee-keepers who, if they could know definitely whether they are going to have a crop or not, will be able to make their plans accordingly. The result will be that they will be able to save in some cases and earn in others hundreds of dollars.

I should be glad to hear from a large number of our subscribers from many portions of the country as to how well these rules have worked out for the last five or ten years. Possibly by comparing notes we may learn something. I do not know of any more important question for discussion during the winter months than this.

According to your rule we have thus far for this locality had all the necessary conditions for a white-clover honey-flow next season; and now you ask, "How has this rule worked with you in the past?" We have kept here no records; but as nearly as I can remember the rule has held out in practice in this part of this country.—Ed.]

WHEN CLOVER YIELDS HONEY.

Bee-stings for Rheumatism; how to find Queens Quickly.

BY S. F. TREGO.

An abundance of white clover in the fall is not always a sure sign of an abundance of honey the next June—page 924. There was white clover everywhere around here last fall, and yet very little honey. The ground is again covered with a heavy growth, and we hope for better things in 1905.

I think the sting or poison of wasps, hornets, bumble-bees, and yellow-jackets differs from that of our honey-bees. They pain me much more than honey-bees. Even the little yellow-jacket, scarcely larger than a fly, inflicts much more pain than a bee.

Isn't it more than likely that the colony that refused to build cells when queenless, page 938, was not queenless at all? I believe more often than many think there are two queens in a hive, and of course the removal of one does not render the colony queenless.

I believe bee-stings are a benefit, at least, to those who are troubled with rheumatism. From childhood I have been troubled with rheumatism in my left arm; but when I began to handle bees, at the age of 18, the trouble was greatly relieved, especially during warm weather when I was among the bees. Later I was out of bees for two years, and the pain was very severe at times, often keeping me awake nights; but as soon as I began to handle bees again, and get a liberal dose of stings daily, the pain disappeared, and very seldom troubles me except in winter.

Recently I have had some experience in unqueening black and hybrid bees in a wholesale way. I took a job of requeening 56 colonies for a neighbor; and as he seldom handles his combs I had quite a problem to solve. The bees were mostly in Dovetailed hives with Hoffman frames, and gloriously glued; besides this, some of the combs were crooked. Here is how I managed it: I spread a sheet in front of the hive, and on it, about 3 ft. in front of the hive, I placed an empty super. I would set the hive on the super crosswise, leaving the bottom-board on the stand, glance over the bees on the bottom-board to see if the queen was there, then remove the cover, smoke well on top of the frames to drive the bees down, and then pick the hive up and give it about ten smart jars, drum out the super, replace the hive on the stand, remove the super out of the way, and with the smoker start the bees running into the hive, and pick the queen up as she traveled across the white sheet in plain sight.

In finding a queen in my own apiary I work differently, as the combs are easily removed. I decide by a sort of instinct or knowledge, gained from long experience, where the brood-nest is (I refer to late fall work, when there is usually brood in only one or two combs). I carefully lift out the most likely comb, glance over it for eggs, and if none are in sight I lean it against the hive and take the next. As soon as I see eggs I look for the queen, and generally get her by the time I have removed three combs. If she is not on the combs where the eggs are I waste no time in looking over the combs, but remove part of the combs and look on the side and bottom of the hive, where she will often be found, especially if she has any black blood in her.

Swedona, Ill., Oct. 10.

[Perhaps the preceding articles will explain about the clover crops. The evidence is piling up showing the efficacy of the bee in fertilization.—Ed.]

HOFFMAN FRAMES.

The Use of Two Followers in a Hive as an Extracting-frame.

BY C. E. WOODWARD.

J. A. Green, the veteran writer of the Rockies, arrays himself in a very strong and postive manner against the use of two followers in a hive. Has he ever used two followers in a hive with the Hoffman frame? It is well to take ample time, and even to experiment to some extent ourselves, before definitely condemning any system. When I was writing on this subject of two followers I was doing so from a comb-honey standpoint. Even in Cuba it would be better to have two followers in comb-honey supers. The merits of the product of the two systems will ultimately decide who are the victors—who is right or who is wrong. Of course, I am speaking of close-fitting followers; and if Mr. Green will try a hive that is factory-made he will see at once that the space is just right. He admits that the Hoffman frame, when handled by intelligent and careful operators, will give entirely satisfactory results. This can be said of all frames in use at the present day. But I do say, all things combined, that the Hoffman frame is the best. Now, I'm not keeping bees on paper or in my mind. I'm speaking from experience. Mr. Green speaks of having to pull the top-bar off nearly every frame in the hive before he could get one out; and the bottoms came off, and the ends pulled out. When a man has such trouble as that, then I advise the use of break-joint honey-boards. In fact, no apiary is complete without them. I have used the Hoffman frame, and Dovetail hive ever since its introduction, and with two followers for comb honey, and find it next to the chaff hive, and have no complaint to make. I also use the break-joint honey-board. I was the first one to introduce them in Cuba. I also believe, as a rule, the merits of the honey-board have, in a great measure, been overlooked by our honey-producers.

Matanzas, Cuba, Nov. 21.

[Mr. Woodward has just ordered two

APIARY OF C. E. WOODWARD, MATANZAS, CUBA.

thousand two story extracting hives equipped with Hoffman frames, and has already three thousand in use, which will make, all told, 5000 two-story hives, or 90,000 frames. His experience is, therefore, somewhat extensive. Some have thought that the Hoffman frame was not adapted for extracting. As we have a good many more customers who use it for this purpose, and extensively, too, it would seem to be only a question of learning how to use it.—Ed.]

SPACING FRAMES.

Staple-spaced vs. Loose or Nail-spaced Frames.

BY MORLEY PETTIT.

I see Dr. C. C. Miller is itching for a scrap about frames with some other member of the Pettit family (p. 936). Well, my time is "scarce," but it will not take long to tell why I like the Pettit style of frames better than any others I have seen. The frame has a $\frac{9}{8}$-inch-wide by $\frac{5}{8}$-inch-thick top-bar and a $\frac{3}{4}$-inch bottom-bar. The end-bars are $\frac{9}{8}$ inch wide part of the way down, then taper to $\frac{3}{4}$. I like this shape because a wedge-shaped comb pulls out of and shoves into the cluster of bees so much easier. I consider Dr. Miller's only objection, that "bees sometimes build past them or between them," very weak compared with this great advantage. The objections I see to the wide bottom-bar are very strong, viz.:

1. They rake and scrape bees as they pass in and out of the hive, unless handled very slowly.
2. They catch dead bees in winter.
3. If two frames are slightly out of square they meet and are glued together at the bottom.
4. If a double brood-chamber is desired, the queen does not so readily go up between wide bottom-bars.

Now about those nails and staples. I fully remember the conversation to which Dr. Miller refers. It was at the Chicago convention two years ago, and I had been wanting to meet the doctor and ask him how he could prefer nails to staples. I certainly admitted that staples cut slightly into the wood of the adjoining frame; but at that time I had not tested the nail spacer enough to be strong in my objection to it. However, that winter I spaced a few sets of frames with nails instead of staples. Those frames have been an aggravation in the yards wherever they turn up, ever since. Your words, Mr. Editor, express it exactly. The staple "permits of the frame sliding into position better than a nailhead, which has a tendency" (rather is *sure*) "to *hook* or *catch* on the next frame." Having used staple spacers four or five years I do not find their cutting into the next frame does any particular harm as yet. When it does I can tack a piece of tin on the top-bar as flat surface for the staple to butt against, rather than have the flat head on the spacer.

Finally, Mr. Editor, you say that extracted-honey men want, generally, no spacer at all, on account of uncapping. I myself am an extracted-honey man on a fair scale, and would say to the more extensive men that they don't know what they are missing. Let me give a record day which will probably compare favorably with what others do.

Between 10 A.M. and 6 P.M. my helper and myself, without other assistance, took off, carried down cellar, extracted, strained, and put in barrels, 2000 lbs. of honey. The honey was three-fourths capped. The extractor was a four-frame non-reversible. The honey had to be carried in pails to the strainer, which emptied into the barrel, and, worst of all (?), every frame had staple spacers. Once you know where the staples are to be found on the frame, the danger of running the knife on them is not worth considering compared with the gain in time of having to take no thought for the spacing in the super. I neglected to say that the supers were all returned to the hives as we went along, and dinner took at least half an hour of the time.

Now, if I seem to have attacked any one, let him do his worst. No one sees more clearly than I the fact that every one has a right to his own way of doing these things; and if you don't want staples and narrow bottom-bars, you seem to me to be the loser thereby.

Belmont, Ont., Canada.

[There, that is right—give it to the doctor. I never could see how he could like those nail spacers in preference to the smooth staples that permit the frames to slide past each other without any hitching or catching. I wonder if the doctor is the only one who uses nail spacers to any extent.—Ed.]

BEES ON SHARES.

A New Form of Agreement.

BY CONTRIBUTOR.

I have noticed lately several cases of dissatisfaction arising from having no written agreement. I have drawn up several documents on lines similar to the one here given. I have thought that this might be of some benefit to those who do not know how to go about drawing up an agreement. The one I send you is very much abbreviated, but it will give one an idea, and he can put in other clauses to meet his particular case or needs.

AGREEMENT TO KEEP BEES ON SHARES.

The parties to this agreement are John Smith, merchant, of Sunnyside (hereinafter referred to as the proprietor), and William Brown, bee-keeper, of Greendale (hereinafter referred to as the operator).

Clause 1.—*Duration of agreement.*

The terms of this agreement come into force on Sept. 1, 1904, and end on Sept. 1, 1909.

2. *Hives, appliances, and supplies.*

The proprietor shall find all hives and appliances necessary to carry on the business, and all supplies that may be needed shall be obtained promptly by him when required.

3. *Location of apiary*

The hives of bees will not necessarily be located on the proprietor's own land. They may be kept at any other place, or in several places, by mutual consent.

4. *Labor.*

All labor to be supplied by the operator. He will devote the whole of his time to the business, should it be necessary, and will also hire labor, should his own time be insufficient. He will see to it that at no time shall any necessary work among the hives be neglected.

5. *Management.*

The system of management shall be left entirely to the operator's own discretion. It is understood, however, that he shall devote his attention to the production of honey rather than increase. He shall make such increase as is consistent with good management; but the production of honey, not bees, shall be the chief consideration.

6. *Increase.*

The operator shall be entitled to receive increase at the rate of one swarm to each two parent colonies worked that season, spring count; all other increase, above that amount, to belong to the proprietor. In no case shall the operator receive more than one-half of the increase, should there be less than an average of one swarm per parent hive, spring count.

7. *Profits.*

At the close of each season a division shall be made, and each party shall receive one-half of all honey and wax that has been obtained. The operator shall hand over the proprietor's share in a marketable condition, and remove his own. The cost of honey-cans, section boxes, super foundation for sections, and crates for marketing, shall be equally divided, but the proprietor shall find brood foundation and all permanent stock in trade.

8. *Exhibition.*

The operator shall have the right to select the choicest of the products, and exhibit them at local fairs in his own name. The proprietor shall not exhibit against him during the currency of this agreement.

9. *Access to property.*

The operator shall at all times have free access to any part of the proprietor's land for the purpose of attending to his duties; but should he cause injury to standing crops, or do any other damage, he shall be liable for the same.

Dated at Sunnyside, this first day of September, in the year one thousand nine hundred and four.

Signed by the above-named John Smith as proprietor, in the presence of —— ——.
(*Signature.*)

Signed by the above-mentioned William Brown, as operator, in the presence of ——.
(*Signature.*) (*Stamp.*)

Fernhill, Hawkes Bay, New Zealand.

[Your form of agreement is all right, except that you leave out all reference as to who is to furnish the hives—for the increase that goes to the operator. In the absence of any specific statement it is presumed that this expense is borne by the owner of such increase.

It is the usual practice in this country, where bees are kept on shares, for all increase to go to the proprietor. The idea is to discourage increase, and thus secure the largest amount of honey possible. As a general rule this arrangement gives better results than where increase is divided or on the basis of one in three as provided in your form of contract. With this exception, your agreement is practically the same as our model contract in the A B C book, under the head of "Bees on Shares."—Ed.]

* * *

A BUNCH OF QUESTIONS.

Size of Entrances; Warm Supers, etc.

BY C. H. HOWARD.

1. What is the largest opening required for a colony of bees? Is ⅞ of an inch by the width of the hive too much?

2. In a Danzenbaker hive, if some of the bees are shut on the outside of the frames by the long wedges, will they find their way out at the ends of the wedges, or will they remain on the frames and die?

3. Some bee-keepers say, "Don't cover the sections too closely." Mr. Danzenbaker, in his book, "Facts about Bees," page 45, tells us to cover up the supers very closely. Which is the better way?

4. If the ends of the top-bar of the Hoffman frame are cut off so there will be ¼ inch space between the ends and the hive, will the bees fill the space up with propolis?

5. I have seen it stated that, with deep bottom-boards, and supers with plain sections, the bees will deposit their honey in the outside rows of sections. Will you explain why they do so?

6. How much honey should be fed daily in the spring to stimulate breeding? Would not 2 oz. per day be sufficient? I have seen the use of much larger quantities advocated. If 8 ounces or a pound a day were fed, would not the larger portion of it be stored, and room occupied that should be for the accommodation of the queen?

Dorchester, Mass.

[1. The largest opening required for a colony of bees will depend upon circumstances. Two inches deep by the width of the entrance may not be too wide in the hottest season. Usually about one inch by the width of the entrance will be sufficient. In winter time, if wintered outdoors it should not be more than ⅜ inch deep, nor more than 8 inches wide. If the colony is not strong, ¼×4 inches might be enough. In the case of nuclei, smaller entrances still should be used; but where entrances are very much contracted they should be watched so that they do not clog up with dead bees. In the cellar, entrances can not be too wide. They should be as large as the hive will permit. Some go so far as to remove the bottom-boards entirely, and leave the whole bottom of the hive open.

2. Wedges are made just short enough so that there will be a good big bee-space at one end for any bees that may be imprisoned to escape into the body of the hive.

3. It is our practice and that of Mr. Danzenbaker to keep the supers as warm as possible. They can not be protected too much. A super that permits warm air in the top to escape unless in extremely hot weather will not give good results in comb-honey production.

4. Bees will not fill up the space between the ends of Hoffman top-bars if ¼ inch be allowed, unless the locality is one that furnishes large quantities of propolis. As a rule this ¼-inch space is left intact.

5. This statement is not strictly correct, although one quite similar to it has been made. The bottom-board should slant from center to side, so there would be a deep space under the center of the frames and a shallow one under the outside frames. This is to make it easy, so it is said, for the bees laden with honey to go to the outside combs first; but practice does not seem to confirm the theory. When there is a fence used on each outside row there is usually better filling of the outside rows than when there is no such fence.

6. You can not measure the amount of feed a colony requires in ounces, as so much depends upon general weather conditions and the strength of the colony. Two ounces may be enough in some cases, while ½-lb. may not be too much in others. For stimulating feeding, no more should be given than just enough to keep bees rearing brood nicely. If more be given they will be liable to store it in the super if there is one, or crowd the queen by filling up the outside combs, and even the center ones if feeding be continued.—ED.]

Heads of Grain
from different fields

SIZE OF WINTER ENTRANCES OUTDOORS FOR A WARM CLIMATE.

How much ventilation should bees have in a climate where the temperature hangs close to 50° all winter, very seldom going down to the freezing-point, and where bees fly some every day or so? If we give them as much as 8×⅜ we are bothered by robbers and also by yellow-jackets. I give mine 4×⅜ on 8 frames, Hoffman, with one fly of burlap and four of paper over bees.

Bees need no protection from cold here—only protection from rain, which is hard on them, as it is rather cool in the spring in brood time. Do you think the chaff hive would pay for the extra trouble of handling?

Adna, Wash., Nov. 14. B. W. BLAKE.

[The question of size of entrance in your case would be dependent wholly upon the size of the colony and its ability to resist robbers. Your climate being so mild you will not need to contract the entrance to keep out the cold. Usually I would say that a full colony should have an entrance 8 inches by ⅜; a weaker one about half as wide; a nucleus, perhaps one inch wide. But if robbers are bad these widths should be reduced about half. The chaff hives in your case would not be enough better to offset the added cost and inconvenience.—ED.]

WILL AN APIARY CONTRACT FOUL BROOD FIVE MILES AWAY?

An apiary of 300 colonies within five miles of me, with a continuous swamp between, was completely demolished by foul brood the last two seasons. My bees are free from it as yet, I think. Do you think it would pay to move them on account of the same? I have some 300 colonies.

Macon, Ga., Nov. 11. JUDSON HEARD.

[We hardly think there will be any danger of your bees getting foul brood across the swamp. They are not liable to fly more than three miles from home. In case of an extreme dearth of honey, possibly they might fly far enough to rob out some of the hives infested with foul brood five miles away. To avoid any possibility of this it might be well to feed a little outdoors. Feed slowly, and dilute the syrup down so that it is very weak, about two pounds of water to one of sugar.—ED.]

WHAT TO DO WITH UNSALABLE CHUNK HONEY; THE UTILITY OF A SOLAR WAX-EXTRACTOR.

I have quite a lot of chunk honey from transferring bees from old box hives into Danz. hives, and no market for such honey here, and I have no extractor. Can that honey be used to feed bees in spring, after heating it and taking the wax off when cold? Section honey is sold here at 10 cts. a pound, and broken comb from 6 to 8, and granulated sugar costs 6 to 7. Can that honey be diluted with water when the honey is granulated? J. J. STOLTZ.

Park City, Mont., Nov. 16.

[I would recommend you to put the chunk honey you speak of in an ordinary solar wax-extractor. The honey and wax will run out together in the pans, the wax rising to the top. After it cools it can be removed and the honey fed to the bees. While you could give this chunk honey to the bees it would be better for you to convert the wax into money at once and give the bees the honey without the comb.—ED.]

STEALING BEES; THE REMEDY.

I have had two hives stolen. I had taken out most from the top body. The thieves took the hives in the night, carrying them out in the field away from the house, tore out good honey, then threw the hive and brood down and left for home. I know pretty well who it is, but how can I prove it? The bees came back next day, what were alive; but it is so late, and having no queen or honey I don't know that they are worth saving. How can I protect them in the future? Would they do well in a shed? Are bee-houses a success? I don't know but if I would build a tight fence around them it would be all that is necessary. They are only a few rods from my house. I don't want to give up my bees. What can I do?

Tamaroa, Ill., Oct. 11. G. M. AMES.

[About the best remedy for a case of this kind is to put up a sign at the bee-yard, offering $100 reward for the arrest and conviction of parties tampering with or stealing your honey or bees. In most States there is a very heavy penalty for such kind of meddling. Thieves of this kind are usually afraid that somebody will "squeal," and after the sign is put up I do not think you will have any further trouble about their being meddled with. This remedy has been applied in a good many cases, and has worked very satisfactorily. While you may not secure the arrest and conviction of the guilty parties, you will probably prevent them from committing any more acts of tresspass like this. House-apiaries are all right, but expensive.—ED.]

VENTILATING THROUGH THE HIVE-BOTTOM FOR WINTER AND SUMMER.

I wish to suggest a new kink. I've not tried it. It is to have a ventilator in the bottom-board to give plenty of air at all times, and such space covered on both sides with wire screen just coarse enough not to let the bees through; then there will be no need of so large an entrance; and in hot weather, when bees get to robbing, close the entrance and not smother the bees. By having such a ventilator the entrance need not be large enough at any time to admit a mouse. Those fellows make me some trouble.

I have been cutting alfalfa to-day, Oct. 3, and have not seen a bee in the field. There is plenty of bloom yet, as there has been no frost, except Sept. 15, and that did no damage to any thing. They never do work on it much, and there are some seeds on it. I have had alfalfa growing for six years. I sometimes, when the entrance is large, put some loose blocks on the bottom-board under the frames to make a bridge for the bees to get on the combs in the middle of the hives. They should be loose when clearing off the bottom. M. W. MURPHEY.

Cuba, Ill.

[I doubt if it would be advisable to have the wire cloth of small enough mesh to exclude the bees. Dead bees and general accumulations of dirt would gather on it while in the cellar, to such an extent as practically to defeat the very object of its use. Better make the meshes large enough so the bees can go through, yet small enough to exclude mice. For summer use a wooden slide could close it up entirely when not needed. —ED.]

SCIATICA AND MUSCULAR RHEUMATISM CURED BY BEE-STINGS; THE CURE IN PROPORTION TO THE PAIN FROM THE STING.

I have been much interested in the articles on bee-stings curing rheumatism; and as a living example that they will do so in certain cases I will give my experience.

I am a locomotive engineer, and for 26 years I have been "shook" or "shaken" worse than any shook or shaken swarm, with the result that for years I suffered with sciatica and muscular rheumatism. At one time two doctors told me I would have to give up running an engine. Now my opinion is that bee-stings help rheumatism in proportion to the amount the person stung suffers from said stings. I have kept bees several years; but one sting on my hand will cause my arm to swell so badly that sometimes the skin will crack in places. There have been several times when I have been stung once; and before I could get into the house (a distance of less than 50 ft.) I would be covered with hives from my toes to the top of my head. I would have to be bathed all over my body with saleratus and water to stop the terrible itching; and my wife would say, "Do get rid of those bees; they will kill you yet." But I say, "I do not have any rheumatism." She thinks the remedy is worse than the disease. I have had the rheumatism only once since I got my first stings, and I let the bees sting me twice, and in less than five minutes it was gone.

Now, to prove my theory, one of my friends who does not suffer at all when stung had rheumatism. I caught some bees in a box, and he let them sting him, and it did not help him at all. Because they cured me I do not claim they will cure every one, though Mr. Archer (page 1072) thinks that, because he was not cured, the remedy is a failure.

F. P. BRIGGS.

Ayer, Mass., Nov. 21.

BEE-STINGS AND RHEUMATISM; THE BAD EXAMPLE OF THOSE HOLY (?) BEES IN STINGING.

In your issue for Oct. 1 you express a wish to hear from others relative to the efficacy of bee-stings as a cure for rheumatism. Let me say that, before I began bee-keeping, I was frequently troubled with that rather uncomfortable ailment; indeed, I may say I inherited a rheumatic tendency; but I was attacked with bee-fever about 35 years ago, and bought 25 colonies of Italians of Mr. King, the editor of a bee-paper in New York, now defunct. They cost me $250. If I had been content with the Italians I might have had the rheumatism to-day; but I added to my apiary some Holy Land or Cyprian bees.

Holy Land! how they did sting! They knocked rheumatism and patience and good humor all out of me for the time being. I didn't keep them long, but my bees have never quit stinging since. I think the bad example of those holy (?) bees has never been quite forgotten by my previously well-behaved Italians; and even this past summer I have been the daily recipient of anywhere from three to three dozen stings; but I have no rheumatism, and for years I have had scarcely a twinge of it.

By the way, I am glad of a single remark in one of your footnotes about the peculiar crossness of this year's bees; viz., "but such crossness I have usually traced to a little infusion of the five-banded blood."

I wonder if those five-banded or golden Italians, of which I have recently introduced quite a number of queens, do not originate from the savage little Cyprians. Some of my handsomest five-banded bees are the crossest little wretches that ever carried a sting. My experience tallies exactly with yours in this matter. Almost invariably I have noticed that the attacking parties have issued from one of either pure-golden or a mismated queen's half-golden progeny. I am not half so enthusiastic an admirer of the golden uniformed warriors as I was two years ago. J. Ferris Patton.

Newtown, O., Oct. 11.

[We were obliged to weed out all the queens of the extra-yellow sort from our apiary next to the factory building because it had so many cross bees in it that it was not safe for teams to go through the yard. Since that time we have had very little trouble. The ordinary imported leather-colored stock is so gentle that one can usually work in the yard day after day without a veil. Yes, I have thought that this extra-yellow stock descended from this holy (?) stock, for—holy smoke!—how they could sting!

I understand that some of these strains of yellow bees were not cross, but I have never yet run across them.—Ed.]

RHEUMATISM CURED BY BEE-STINGS.

I see a great deal is said about stings. I can add my experience with the rest. When I left Illinois I was almost a cripple from rheumatism. I arrived in California about 19 years ago. The climate helped me some; but after being 8 years here, I went into the bee business, and from that time on I have not had the least bit of rheumatism. I can be stung a hundred times, and it leaves no mark on me. B. P. Shirk.

Hanford, Cal.

GRIFFITH'S SHEDDED APIARY.

THE 4×5 SECTIONS.

I send you a couple of photos, one of one super from a Danzenbaker hive, swarm hived June 3 (natural swarm). The super was taken off July 15, and they now have that nearly complete. I had six swarms left from last winter, and increased to 15. I have taken off 260 lbs. of comb honey, and expect about 500 lbs. more. I wish to try for the premium at the State fair this year with the 4×5 plain section. There is one premium for the most attractive display. It was awarded to an exhibit in an oaken cross covered with glass. The other view shows my little apiary under a shed.

R. GRIFFITH.

Kenosha, Wis., Aug. 13.

[The person at the left of the pile of honey would indicate that a "better half" had a hand in the production of that honey. Beg pardon, may be she is a best girl. In either case GLEANINGS expresses its best wishes. Those little apiaries, while they may not make a big showing on the market, often bring a world of enjoyment to their owners. I judge yours is one of them.—ED.]

HOW TO SHIP 100 COLONIES OF BEES FROM CANADA TO JAMAICA.

I am thinking of shipping 100 colonies of bees from here to Montego Bay, Jamaica, about the 10th of next month. They would be in cellar at this date, and would require to be put in shipping condition in cellar. The temperature outside usually runs from zero to 20 above. Under these circumstances do you think I can make the shipment a success from apiary here? Bees would be moved to car on sleighs, then by car 750 miles to ship, thence by ship to Montego Bay; from there to apiary about 6 miles on wagons. The bees at Montego Bay would be gathering honey at date of arrival of my bees.

I would go in charge of the bees. I have had no experience in handling bees on cars or ship. I have moved bees on wagons with good success. If you think the shipment can be made a success, kindly advise how to put the bees in the best possible shipping order—what care they should receive *en route*, what part of the ship to be placed in; if each hive should be spread out or piled one hive on top another.

EDMOND I. BERRY.

Brome, Que., Canada, Nov. 11.

THE PRODUCT OF ONE SWARM IN SIX WEEKS.

[I think there will be no difficulty about shipping bees and having them hauled upon sleds or sleighs to the railroad station. In very cold weather they will not require very much ventilation, of course. The hives should be so prepared that the frames will be secure, and so that there shall be both top and bottom ventilation when the bees get into a warm climate. It is better to have wire cloth covering the whole bottom and the whole top. There should be a rim about two inches deep nailed on top of the hive, and then on top of this the wire cloth. Arrangements should be made to give the bees water when they arrive at a point in the journey where it is very warm. The wire cloth on top can be sprinkled very liberally to advantage. Combs should not be too heavy with honey, and, of course, all ought to be wired. However, if you see to loading and unloading they might go through without wiring. In loading bees on a freight train be sure that the frames are parallel with the rails, not crosswise; in loading on a wagon it is better to have frames parallel to the axletrees. In a sleigh or sled it will not make very much difference how they are loaded. It would be advisable to strew about five or six inches of straw in the wagon and on the car bottom. This is to cushion the load of bees and allow a little for vibration. You want to make arrangements so that the bees on arrival at their southern destination are moved immediately. It would not be advisable to wait to get some drayman, but through correspondence have one ready as soon as possible when the bees arrive, or several of them. Bees ought to have a flight almost immediately on arriving at destination.

Load the bees on shipboard on top of the deck in the shade where they can get plenty of air. If you can get the room, spread them out; if not, pile them up, but leave plenty of air space between. The hives will need to be secured to the deck to prevent being knocked around in a heavy sea.—ED.]

BEST TIME TO REQUEEN.

I wish to requeen. What is the best time for this—before, after, or during the honey-flow, or as early as possible in spring, or as late as possible in fall? My queens are not clipped. What is the best time for attending to that? AUSTIN D. WOLFE.

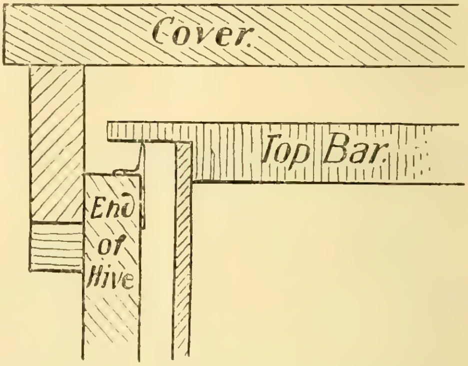
Parkville, Mo., Nov. 21.

[The best time to requeen is immediately after the honey-flow, or main honey-flow. If you requeen in the spring you are liable to set the colony back by several days. Requeening can be done, however, *before* the honey-flow, without material loss, on the following plan: Leave the old queen in the hive; cage the new one, and leave her caged for two or three days while the old one is going on with her regular work. At the end of that time uncover the candy for the introducing-cage; dig out enough so the queen will be released in three or four hours by the bees; and before closing up the hive remove the old queen. The new queen, having the scent of the old colony, will be accepted as soon as she is released, the presence of the old queen not interfering in the least. In this way a colony is requeened with hardly any loss of time.—ED.]

HIVE-RABBETS.

Seeing the account of Mr. Brunskog's manner of lengthening the top-bar by changing the hive-rabbet, page 609, and the subsequent comments, pages 636 and 848, impels me to send you a description of the rabbet as made in the hives, in use at the present time, in our apiaries.

Knocking out the rabbet and nailing on a cleat, as Mr. Brunskog does, is what we do exactly. We, however, drop the cleat down till the top edge is one inch below the upper edge of hive end. This arrangement will allow the frames to be picked up by the ends, which is the correct way. The rabbet, as now made in the Dovetailed hive, is its weakest point. Before adopting our present style, quite one-half of our hives had the rabbets broken out, any way. The least tap is sufficient to break out a rabbet; and we have had them, when securely stuck to the cover, split out and come away with that.



Mr. Brunskog has improved upon hive-rabbets by giving more room in which to lengthen the top-bar, and giving a secure handhold; but he has, it appears, entirely lost sight of the most important point—access to the ends of the frames. DR. L. E. KERR.

Germania, Ark.

[Your suggestion is a good one, and it is in one respect superior to Brunskog's in that it can be applied to hives already in use, and to covers already in use, by cutting out the rabbet by nailing on an extra cleat below the one already on the cover. But in another way it is open to a serious objection; namely, that such hives and covers and frames with extra long top-bars would not be interchangeable with other hives in use over the country, and to that extent it would be odd-sized and irregular.

The average bee-keeper who has a considerable number of colonies is quite liable to be either absorbed by some bee-keeper larger than himself, or to absorb the other fellow. Very often there is a bee-keeper in a locality who does a larger business than the rest. He makes his bees pay while his neighbors, owing to his own superior management, are not able to make a living. The big one, of course, would like to have all the territory to himself. The little fellows become discouraged, and are willing to sell out. They get their heads together and begin to talk business. Suppose each one has different kinds of hives or covers. The seller will have to sacrifice in order to strike a bargain; and the buyer will have to submit to all kinds of inconvenience by reason of the lack of interchangeability. I have seen this condition of affairs in many parts of the country; and when we attempt to make any radical departure we are obliged to put up with a great deal of inconvenience.—ED.]

THE NUMBER OF COLONIES TO A GIVEN LOCALITY; FEEDING IN THE FALL.

1. At my suburban home, three-fourths of a mile from the center of a city of 25,000 inhabitants, I have a hive of bees which for the last five years have averaged about 50 lbs. of honey. Within a radius of two miles there are probably not to exceed a dozen colonies. There is a fair succession of honey-producing flowers in this vicinity, though no very great abundance of any kind. This year's honey crop (which, by the way, broke the record, notwithstanding the fact that clover was practically nil) was about as follows: From locust, 23 lbs.; ailantus and catalpa, 27 lbs.; sumac, 20 lbs., all comb honey. Late this year I got two more colonies. How many more can probably be kept with profit in this locality?

2. When eight-frame Dovetailed hives are operated for comb honey only, the brood-chamber being left undisturbed, will the bees, in an average year, store enough honey to winter safely without fall feeding, especially where there is a good scattering of heartsease, asters, and goldenrod?

E. W. PEIRCE.

Zanesville, Ohio, Nov. 4, 1904.

[1. It is hard to estimate how many colonies could be kept in your locality—possibly 40 to 50, although the average per colony would be a little less than where you have only a few. It will, perhaps, be advisable for you to increase the number to 10 or 15. If these give you good average yields, keep on increasing until the average is materially reduced.

2. This is a hard question to answer, as every thing depends upon the season. With a year like that mentioned in question No. 1, an eight-frame hive would have enough, after taking away the surplus, to winter on, but generally the bees will require to be fed a little after all the honey but that in the brood-nest has been taken away. If you can exchange 3-cent sugar syrup for a winter food for 10 or 15 cent comb honey you can afford to feed a little.—ED.]

A SWARM OF DRONES.

I want to tell you about my new experience. I was watching the bees; and, imagine my surprise to find quite a swarm hanging high in a tree. So I got my step-ladder and hoop, and climbed up and captured my swarm, when I found it was only a bunch of drones and a very few workers. Can any one explain where they came from, and what would have become of them if I had not got hold of them?

Spearfish, S. D. N. L. ANDERSON.

[This swarm may have been the remnant of a fertile worker or a drone-laying colony. As things were all going wrong they swarmed out just as stocks will frequently do when conditions are going from bad to worse.—ED.]

HOFFMAN SHALLOW EXTRACTING-FRAMES TOO LIGHT.

The Hoffman frame was pretty well discussed in the Oct. 1st issue. That frame suits me very well just as it is, and so does the division-board. I think it best at first to put one in at each side of the frames; if only at one side the comb next to the hive is often pasted to the hive because the space is too small; and would it not be well to have division-boards between all the combs, sash or frame, at first, till the combs are built straight, which would necessitate leaving out some frames at first till the division-boards have been removed? The division-boards should be made of slats like the fence in the supers, and such springs as are in the supers would be nice to keep up the frames in the brood-nest. As I said, the

Extracted Honey
YUM-YUM!

Hoffman frame is all right in the brood-nest; but the extracting-frames that I got with the same shipment are very inferior. I would be willing to pay better prices if I could get such as are in the brood-nest.

Cuba, Ill., Oct. 5. M. W. MURPHEY.

[The extracting-frames have been made lighter to allow for more comb surface. To use a top-bar ⅞ inch thick, in the extracting-frame only 5⅜ inches deep, same as is used in the frame 9⅛ inches deep, would make too great a disproportion, and cut down the comb space materially. We can very easily supply thick top-bars for such frames at a very slight extra price.—ED.]

WHAT AN EXTENSIVE USER HAS TO SAY OF HOFFMAN FRAMES.

I shall continue to use Hoffman frames with the V edge. I have used the square edges, and decidedly prefer the V. I have perhaps 10,000 of them in use, as well as a large number of unspaced frames. These last I shall gradually replace with Hoffmans. We run for extracted honey exclusively, using 9 frames in the super, and we find that the contention in regard to the projections of the end-bars being in the way while uncapping is almost entirely unfounded in actual practice, as well as other claims of their being harder to handle, etc. I am well aware that some will say that, by the use of 9 frames in the super of a ten-frame hive, we do away with the self-spacing feature of the Hoffman frame. But when we remember that it is desirable to have frames that are interchangeable from super to brood-chamber, all will be clear. Taking it all in all, I consider the Hoffman the best frame on the market to-day.

WILLIAM ROHRIG.

Tempe, Ariz., Nov. 12.

STORES NEEDED FOR OUTDOOR WINTERING.

Mr. Editor:—I notice that you say on p. 1059 that you figure on from 15 to 20 lbs. of honey to the colony for outdoor wintering. This may do for your locality; but it would be hardly safe for all to go on that plan. We need in this locality at least 10 lbs. more than that. I followed the advice of the A B C book for several winters, and allowed 25 lbs. per colony, and my bees generally came through the winter weak, and short of stores. I now leave 35 to 40 lbs. to the colony, and get much better results. My bees come out in spring strong in numbers and stores, with comparatively no winter loss.

HOFFMAN FRAME WITH SQUARE EDGES.

I hope you will make the Hoffman frame with square edges to the end-bars next year, as I prefer them; otherwise the frame suits me *very* well. I would not exchange it for any other frame that I know of, as it is. I use 7 frames in the surplus stories of an eight-frame hive, and discard the follower. I do not have very much trouble from propolis. I winter outdoors on summer stands with no extra protection, in eight-frame Dovetail hives.

JAMES T. SHACKELFORD.

Napton, Mo., Nov. 27.

BABY NUCLEI; MATING QUEENS FROM BIG QUEEN-CAGES.

I am glad to hear baby nuclei are so much appreciated. This reminds me of something I did a few years ago. I never told you about it, but will now. One summer I raised so many queens in a lamp-nursery I did not have hives enough to introduce them as fast as they were hatched; then I put some in big queen-cages. I left them caged till I thought they were ready to fly; then I opened cages only after dinner, and to be sure said queens flew out and got mated. But as these cages had no combs to lay in, then the drawback came. D. E. BEST.

Best's, Lehigh Co., Pa., Oct. 26.

HOW TO READ GLEANINGS.

Owing to the privilege of discussion which is extended to readers of GLEANINGS, no one issue of the journal is complete. To pick up one copy and endeavor to get from it all it contains is like reading a chapter or two of a story and trying to imagine what has gone before. There are so many references made in each issue to things which have been printed in past issues, that, in order to get full benefit of the matter before one, constant reference must be made to back numbers.

There is also another peculiar feature of GLEANINGS, resulting, like the first, from the practice of discussion; and that is, the conversational tone of its articles. To open a journal is quite like stepping into a company of people earnestly engaged in discussing the various phases of a certain subject—one which has evidently been frequently discussed in like manner before. To get the full benefit of the present meeting, one should, therefore, have been present at the others, and it is just so with GLEANINGS.

To illustrate I will quote from the first page of the issue for Nov. 1. Six out of the eight Straws on that page are references to and further discussions of matter printed in the preceding issue. Only by having read, or referring to the former journal, can one grasp all the meaning of the subjects mentioned.

No ordinary memory can recall at a moment's notice just exactly what or all that has been said on any subject to which reference may be made again at some future time; hence it is a good plan to keep the last copy at hand until after the next is read. The way we have learned to do here is to hunt up the last one when the next is received, and sit down with both together. Then probably we shall have to go and get another or two of still earlier date before we are through with the last one. In this way nothing escapes us, for by the time we get through with any copy there is not much in it but has been mentally digested.

To any, if such there be, who feel that

they do not get all out of GLEANINGS that they might, I would recommend this plan of reading, or study, rather, for study it necessarily is. If read for a time in this way its value will be multiplied, especially to the farmer bee-keeper, who must use his spare moments to the best possible advantage, and yet who particularly needs just such concentrated knowledge as may be gathered from this and similar publications.

By the way, what has become of the "brushed swarm" advocates of two seasons ago? Undoubtedly many were led by the various articles on the subject printed in GLEANINGS and other bee-journals to try that plan of management. I should like to know if any have persisted with the system; and, if so, when they supersede their queens, and how often. This appeared to me as the principal drawback, for of course the old queen is brushed along with her bees. I have been expecting something on this subject before now, but so far have been disappointed.

MRS. MILLIE HONAKER.

OUR HOMES,

BY A. I. ROOT.

Thou hast loved righteousness and hated iniquity; therefore God, even thy God, hath anointed thee with the oil of gladness above thy fellows.—HEB. 1 : 9.

From childhood up I have been fond of the magazines. I used to read Harper's almost as long ago as I read the *Scientific American;* but even when a boy I used to get indignant at the ghost-stories because the magazine left them or chronicled them as if they were real facts. Later in life there were other things that seemed to me not exactly in the line of righteousness. Recently magazines have become much more plentiful, and so cheap they are now found in the homes of people in very moderate circumstances. A magazine is different from a newspaper inasmuch as it is expected to be edited with more care. The news given is supposed to be more reliable; and as the editor has a whole month to prepare it, the stories are supposed to be of a higher order, the work of our best-educated and talented men and women. There are Christian people, I am well aware, who object to fiction, but perhaps not as many now as there used to be; and the whole world now recognizes the value of choice fiction. It sends home truths, many times, that could not be gotten before the people in any other way. Well, for years past I have been tried and oftentimes indignant because of certain features of the fiction of the present day. We have now a large number of ten-cent magazines. They are offered for sale everywhere. I think they have largely taken the place of the ten-cent dime novels, and may the Lord be praised for it. But although these magazines contain so much that is grand and good, and although they contain now and then some splendid temperance articles, there is one feature in them that is lacking—at least I have not been able to find a real wide-awake magazine, up to the times, that is not more or less faulty in this respect. The inclosed clipping from a daily newspaper tells it better than I can:

ALCOHOL INFLUENCING THE LITERATURE OF THE DAY.

PHILADELPHIA, Dec. 1.—The National W. C. T. U. adopted a resolution as follows: "We deplore the tendency of modern writers of fiction to assume that the bottle and the pipe are necessary adjuncts of many of their characters, and we recognize the statments of Dr. Crothers, the well-known authority on inebriety, 'that the use of alcohol is influencing the literature of the day.'"

I am not sure that the brewers' combine pay certain men for writing stories that would probably find their way into the average magazine; but I have suspected many times they were doing this. When you are traveling and have to wait for a train, a magazine comes in very nicely. You start in with a story, and it opens up with so much skill, and is so entertaining, you mentally thank God for the magazines with their able writers. The hero of the tale is pictured as one of the bright able men of the day. He does many things that we can not help admiring; but pretty soon he invites all hands to a bar somewhere for drinks; and the magazine article weaves it in with such rare skill that one is almost persuaded it were the thing to do under the circumstances. Blasphemy and foul oaths are brought in in the same way. No wonder the boys of the present age are encouraged to think it is the proper thing to swear ("until the air is blue") under certain provocations. Pipes and cigars are brought into the story in the same way. When I express my indignation to the younger ones of our family because of such a mixture of vileness and indecency they reply, "O father, you must not expect every thing of a periodical that does not claim to give us religious literature. Sort out the good and let the bad go, or skip it."

There is one particular magazine that began a grand work in exposing the iniquities of our great cities. Our minister has frequently mentioned this magazine in a way that would lead his hearers to think it was one that the whole family should read; and yet in one number there were stories that seemed to indorse in strong terms not only whisky, tobacco, and gambling, but there were stories to the effect that *prize-fighting* might be all right under certain circumstances. The great world does not always know what good reasons(?) the prize-fighter might have for following his profession. A little further on in the same story this same hero was represented as excusable for encouraging something worse still. When I called our pastor's attention to the pernicious effect of these very ingeniously written pieces of fiction he said he had not noticed it until I pointed it out; and he seemed to think it was not a matter of *very* great importance after all. Well, he may be right, or partly so; but I can not give up that I am entirely wrong. I agree with the W. C. T. U. resolution quoted in the above extract. I think it is a shame and an outrage that our story-writers should help the saloon, especially when there is such a terrible conflict going on in regard to the rum business all over the world.

One of the speakers at one of the Anti-saloon meetings threw a banner across the stage with the heading, "A barrel of whisky or a bushel of Bibles." He said that, at a recent meeting of the Liquor League, one of the speakers told us to bring on our Bibles, as big a stack as we pleased, and he said he would beat us all out of sight with a barrel of whisky. I am exceedingly obliged to him. I have several times wished that the whole world could read some of the liquor papers—the *Wine and Spirit News*, for instance. I wish the people who declare the Anti-saloon League does not amount to any thing would read these liquor publications. Evidence furnished by the enemy would probably be credited. The question that lies before us, dear friends, is, when boiled down, Which will come out ahead—the Bibles or the whisky-barrel?

During one of the sessions in Columbus it was my pleasure to meet and get pretty well acquainted with Miss Lucy Page Gaston. Many of our readers will recognize her as having charge of the department of the W. C. T. U. work in a crusade against cigarettes. Several States in the Union have passed laws that I believe are well enforced against both the manufacture and sale of cigarettes; and from the expression given through our papers and everywhere else, we would suppose almost every man, woman, and child, with the exception of the cigar-makers, and venders and users of the same, would vote against cigarettes. Miss Gaston told me that the protest seemed to be so great and universal she supposed there would be no question about getting a prohibitory law. As soon as the crusade was well under way, however, the manufacturers of cigarettes declared that the proposed law should not be passed, even if it cost them a great sum of money—I think it was something like $100,000. They would spend this enormous sum of money rather than see their lucrative business cut off, even though that business involved the making of idiots and imbeciles of our schoolboys. And yet these same magazine articles indorse cigarettes. They tell us of fine ladies who make their gentlemen friends presents of cigarette-holders, etc.

If you will read the current papers you will see the brewers are getting to be greatly worried. The Anti-saloon League all through the United States is making wet territory dry at such a rapid rate the brewers are feeling it keenly; and they are leaving no stone unturned, not only in holding their own, but to hunt up new territory.

At the Anti-saloon League congress we had a delegate from the Indian Territory. He begged our indulgence, at the opening of his talk, if he spent a little time in giving a sketch of what the Indians are doing in the way of civilization. He said we would see the application a little later on if we were patient. Then he told us about the good farmers among the Indians, of the merchants, manufacturers to some extent, of their schools and churches, periodicals, and of their wealth. I suppose you all know that, up to the present time, there have been very stringent laws against selling intoxicants to Indians. When I was in Arizona I asked my brother *why* they were so very emphatic about prohibition among the Indians. He explained it was because they were only partly civilized. When an Indian is drunk he is a savage again, or perhaps a maniac. He is on the war-path and on the war-dance with a whoop and a yell. He kills without care or regard, not only enemies, if he has any, but his own family as well. An Indian, when drunk, is a maniac—a mad man. By the way, it seems a little funny it has never occurred to our law-givers and law-makers that there are quite a few *white* people who are not much better off. Well, this delegate from the Indian Territory told us the brewers had their eye on these Indian villages and cities. A petition is now before Congress to permit them to introduce beer among the Indians. What excuse do they give for such a petition? Well, it is something like this: They say the Indians are now sufficiently civilized so they are able to judge for themselves, like white men (?) as to when they have had enough to drink, or as to whether they ought to drink at all. They would thus elevate the savages to a position of *dignity*, where they will be able to rule themselves instead of being subjects of legislation, etc. Now, this delegate actually plead and begged that great convention to pass resolutions and send personal protests to Congress, urging that no such petition be granted; and he gave us a picture of what would surely happen were beer-saloons allowed in the Indian Territory. He said there was no doubt the brewers would reap a rich harvest; for the Indians, after they once get started, would spend every thing and sell every thing for drink.*

Now, then, friends, again, which is to rule in this nation of ours—a "bushel of Bibles" or a "barrel of whisky"? When it comes to voting on the manufacture and sale of cigarettes, are respected, educated Christian people to decide the matter, or is the $100,000 belonging to the makers of cigarettes to decide in regard to our laws? Miss Lucy Page Gaston, when she told me her disappointments and defeats in her line of

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* Since the above was in type I see by the dailies that the brewers are putting up buildings all through the Indian Territory, where, they tell the people, beer is to be sold as soon as this matter comes before Congress; or, in other words, they are going to open up beer-selling among the Indians unless the people make too much fuss about it, as they did about the canteen in the army, for illustration. Now, friends, we want not only the prayers of Christian people, but we want such a loud protest that it will be heard and felt to the very ends of the nation.

Christian work, seemed downhearted and discouraged. She said everybody was willing to assent that cigarettes *ought* to be banished, but they were not ready to do any thing particularly. She rejoiced to know that the heads of great factories as well as railroad lines decline to employ a man who uses cigarettes; but that when it came to legislation there seemed to be a general belief that, where great factories are making money, and paying a big lot of taxes, they could not very well be interfered with. Now to go back to that newspaper extract:

It is not at all surprising that the use of alcohol is influencing the literature of the day. If there is any thing that the liquor-business is not influencing, I should be glad to know it. The W. C. T. U. has been instrumental in introducing text-books throughout the United States, warning the children against the evils of intoxicants. But we were informed at the convention that the liquor-dealers are making vehement protests against these same school text-books; and they have got some men who stand pretty well up, to agree to help them in getting these books out of the schools. They claim it is out of place, etc. Now, if the schools of our land are not the place to warn our children against intemperance, where in the world is the place?

May be I am finding a good deal of fault with this land of ours and of what is going on; but I am not by any means unmindful of the glorious things that are being done, and of the good men we have in high office. It was my good friend Miss Gaston who wrote our President, and received a letter saying he had never used tobacco in any way, shape, or manner, and that it was very unlikely he ever would use it.* No wonder he takes such a stand as this when we take a glimpse of that bright family of a goodly number that is growing up around him. I have just seen a brief statement in one of the dailies that President Roosevelt has already expressed his disapproval of letting the brewers carry beer into the Indian Territory. May God guide and give our President courage and wisdom to stand his ground.

In our last issue I told you of the business of a "procurer." He is employed to get hold of young women who get off the trains in the great cities unattended. I am glad to tell you that the Y. W. C. A. has established itself so well in the depots of nearly all of our large cities that they have a competent woman to look after unattended girls. I have met members of this organization in different cities, and have thanked God for the work they are doing. In this connection I should make a great mistake if I should fail to mention Miss Helen Gould and the grand work she is doing for her fellow men and women. May God be praised for at least *one* woman who has great wealth and is using it for the purpose of lifting up and protecting her sisters.

In the opening of my talk I complained a little about *Harper's Magazine* as it used to be in my boyhood. I am now going to say something in favor of the Harper publications. It was one of my happy surprises when I found the following in *Harper's Weekly*:

> The standard of manners among smokers seems to be low. The men who bring lighted cigars into street-cars and the cars of the elevated railroad, the men who crowd the back platform of surface-cars and smoke in the face of every passenger who crowds past them to get on or off, clearly and scandalously disregard the rights of others. They are usually men who, judging from their outward appearance, ought to know better. But they don't seem to know better. They don't seem to appreciate that their behavior is an imposition on public patience. These street-car smokers ought not to be tolerated, and we hope that an inclination recently disclosed by the health authorities and the railroad officers to get after them will bear prompt and effectual fruit.
>
> There are fit places for tobacco-smoke, cigarettes, and cigar-stumps. Out of place they are all offensive. To smoke in the street is inexpedient at best. To carry a lighted cigar into any house, into any shop, elevator, waiting-room, or vehicle is bad manners, ranging in degree, according to circumstances, from inconsiderateness up to boorishness. Women, as a rule, don't smoke, and careful consideration for their wishes as to tobacco should always be shown by smokers while in their company.

If every magazine in our land would give place to a similar editorial it might do more good than anybody can ever measure; and if every one who reads our current magazines would send a nice little note to the editor, protesting against the stories that even indirectly encourage vice and intemperance, I think we might soon have some stories just as interesting at the same time that they uphold "righteousness" and *discourage* "iniquity."

SELLING "SECRETS;" OR, "HOW TO DO THINGS" FOR A SUM OF MONEY.

Our older readers will remember how pronounced and decided I have always been against this practice. First, whoever gets a dollar or more for any secret ought to furnish a decent-sized book according to the amount of money charged. If he does not do this, and sends only a few directions printed on a single slip of paper, the recipient could copy it for his neighbors, or, better still, have it published for the benefit of all. Of course the vender sometimes exacts a promise not to divulge the secret; but I would always object to making any promise not to divulge what would be of benefit to my fellow-man. Now, I want to give you an illustration from a transaction from real life. In several of our automobile journals we have the following:

> DON'T THROW those worn-out tires away; none so bad but that can be fixed at small cost. A revelation. Write to-day. P. B. FELLWOCK, Evansville, Ind.

After reading the above I recalled I had two "played-out" automobile tires that cost $15 to $18 each. One of them had run less than a year, yet the manufacturer said it was good only for scrap. What do you suppose the shrinkage in value is between the first cost and "scrap" value in less than a year? Well, all they wanted to allow me for the scrap was *36 cents*. Accordingly, I was in just the right mood to write to Mr. Fellwock. Here is his answer:

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* This matter came about, so Miss Gaston told me, something this way: Mrs. Carrie Nation was denouncing the grown-up men who set an example before the boys of using cigarettes; and in her vehement reckless way she declared that President Roosevelt was a user of cigarettes. Several remonstrated at this, and finally Mrs. "Carrie" said, "If you will prove to me that President Roosevelt does not use cigarettes I will donate $50 to your anti-cigarette crusade." I asked Miss Gaston if Mrs. Nation turned over the money as agreed when she found out she was mistaken. She replied it had not as yet been forthcoming.

> *Mr. A. I. Root:*—Regarding my method of repairing auto tires, I am pleased to say that, after exhaustive tests, much trouble and expense, I have at last found a quick and sure way to make even a very badly worn tire last a great while longer. The method applies to either single, double, or clincher tires, but it is more and exceptionally satisfactory on the single-tube type. It is best adapted to 2½-inch or 3-inch tires. It is simple but effective, having all the advantages of solid rubber tires, devoid of punctures, as it requires neither air nor pump.
>
> To be brief, it is a filling that is placed within the tire. It requires no tools, and can be done by any one in an hour's time. Big holes, blow-outs, or long cuts anywhere about the tire are no barrier to this method. It can be done with a cheap or a better material. The cost of the former on a 2½x28-inch tire will be less than $2,00, and the cost of the better will not exceed $3.50 per tire. I strongly recommend the latter, as it can be taken out after the tire is completely worn, and be placed in another one. The material for this purpose can be bought in any city of any size.
>
> I have owned an automobile for over two years, and my tire troubles have been many; but I now consider them overcome, and feel much relieved at the thought. Furthermore, rubber tires are sky-high, and the end of advances is not yet in sight; so it pays thus to use up those old cast-off and considerably worn-out tires, and give the tire-manufacturers a chance to catch up with the demand and again price their product within the reach of all. This is made possible by my method of prolonging the life of your tires.
>
> The price of recipe, with complete instructions, is $3.00. Detailed directions accompany each recipe, which will be promptly mailed upon receipt of $3.00 in cash, check, or money order.
>
> I am not compelled to make any side money, as my income is ample; but I am an auto enthusiast, and feel that, by spreading my method, I do a good turn to many, and many more good turns to your tires. But as this takes time and money I feel justified in calling for the above fee. Remember, the better grade of material can be used in a number of tires, which is a decided saving in time and money. P. B. FELLWOCK,
> Evansville, Ind.

The above letter made me still more anxious to have his valuable secret, especially as there is not a word said about giving the recipe to others; so I made haste to send the $3.00 so I might give the discovery to the readers of GLEANINGS. Below is what I got for the money:

THE "$3.00 SECRET."

> Buy of some rubber concern 2-inch best-quality rubber balls. They cost about $1.00 per dozen, and it takes 44 balls for a 2½x28-inch tire. The Day Rubber Co., of St. Louis, handles a suitable ball. Now, at the tire cut a gash at the inner side of the tire as if you were inserting an inner tube; cut similar gash at the opposite inner side, punching holes one inch apart and one-half inch from the edges—these for the lacing. Ram the balls in the casing with a bent iron bar or crooked stick. Be sure that every ball is driven home—an all-round tight fit is essential. The last ball may have to be trimmed slightly; then lace up the gashes, and your tire is ready for business.
>
> A cheap 2-inch ball can be bought for about 50 cents per dozen; but they will crush, and are not as resilient as the better quality. For a 3-inch tire it takes a 2½-inch ball, but it is well to measure carefully the inside of the tire, as some have a heavier stock than others. Big holes about the tread can be covered with patches from other old tires, and will stay in place a long while, as there is no pressure outward. Clincher tires are somewhat harder to handle; and as there are so many different makes it is hard to give directions; but there is some way of fastening the outer casing of every style. In the heavy-base tire it may be necessary to cut a hole in the tread to get in the last few balls; but this hole can be patched up as above stated, and give good service.
>
> If your old casing is pretty well worn, and limber, lace it on to the rim to insure the stay of it. In ramming in the balls, do not hit them with the bar, but use a round block of wood three inches long that fits loosely in the tire. This will absorb the shock and protect the balls while being driven in. Such tires should be used for front wheels only, as the traction duty on rear wheels is too severe. Yours truly,
> Evansville, Ind., Dec. 5. P. B. FELLWOCK.

Well, I have spent a good deal of money in purchasing recipes for making artificial honey, how to catch absconding swarms, etc.; but I believe the above is the most reasonable of any of them. By the way, I forgot to mention in the proper place that there is one *other* objection to selling secrets. Almost without exception they are something that is already in print. I paid a man $1.00 for a recipe for making artificial honey, and found, after I got it, it was printed word for word in Dr. Chase's "Receipt-book;" and after reading the above I was reminded that the suggestion of using rubber balls instead of inner tubes has already appeared in print in some of the automobile journals.

Now, I do not suppose this recipe is worth $3.00 to every reader of GLEANINGS; but we will say there is one man in a thousand who can use it for automobiles, bicycles, or something of that sort. In that case it would be worth pretty nearly $50.00 to our family. By the way, he admits in the above that it is suitable only for the *front* wheels, and, if I am correct, that it is not very practicable for clincher tires—the kind that is mostly used on all automobiles. Never mind. I have had some *more* experience in purchasing secrets.

FAKE WEATHER FORECASTS.

Under the above heading the *Country Gentleman* for Nov. 10 gives a very valuable paper from the New York State Director of the United States Weather Bureau. Commenting on the above they add:

> It is many years since the *Country Gentleman* gave final quietus to the wheat-turning-to-chess nonsense, by the simple expedient of offering a reward, we believe of $500, for a root bearing the stems of both plants, competitors being required to deposit some small sum as a forfeit in case the stems should prove to be merely twined together. Needless to say, not a single sample was ever presented. We believe the time has now come for extinguishing the long-range weather-forecast nonsense. We therefore beg to say that we will pay $500 dollars for a correct prophecy of the weather at Albany for any month selected by the prophet six months in advance, under simple and perfectly fair conditions to be formulated in the (extremely improbable) event of anybody's desiring to try his hand at the undertaking.

In addition to the above I will give $1000 to the weather-almanac prophet if he will even give us any reasonable forecast of what *any* month will be in any given locality. There is one particular point where people who have faith in these long-range forecasters seem to be weak. Almost every month has some marked peculiarity, some very *unusual* feature in regard to the weather. Now, if these forecasters had any knowledge at all of the future they would certainly put emphasis on this peculiar thing.

As an illustration, the month of November has been almost unprecedentedly fine weather, and *good roads*, in consequence of little or no rain (the dryest ever recorded by the Weather Bureau) over a very large area. The automobilists have been rejoicing (and I hope thanking God) for an almost entire November with good smooth roads. There has been just enough rain to lay the dust, and nothing more. Now, friends, turn to your fake almanac. The prediction is, of course, for usual November weather—cautions about caring for stock, etc., but not a word about a *dry November**. Nobody has as yet applied for the $1000 offered for one pound of manufactured comb honey. Like the editor of the *Country Gentleman* I am not at all afraid anybody will come for this last $1000 offer. Hicks is just now "giving himself away," as I take it, by heaping abuse on the Weather Bureau, because they denounce him as a fake, although he admits they do not call him by name. It looks to outsiders as if he not only recognizes the "coat," but even *makes haste* to "put it on."

FURNISHING TOBACCO FOR JAILS, INFIRMARIES, ETC.

A subscriber sends us the following from the Terre Haute *Tribune:*

> TOBACCO NOT ON PARIS JAIL FARE.
>
> Paris, Ill., Dec. 9.—The county board of supervisors does not propose to encourage the use of tobacco by allowing each prisoner of the county jail, addicted to the habit, ten cents a week to satisfy his craving. This custom, which was first introduced at the State penitentiaries, has been in effect here many years. The county board balked when a six-months' tobacco bill was presented, and decided to abolish the custom.

The above looks like progression. I never could exactly understand how our people expect to make bad men better by allowing them ten cents a week, or any similar sum, for tobacco. Most men, when they turn to serve the Lord Jesus Christ, cut off tobacco at the outset. Some years ago an inmate of our infirmary, with whom I was somewhat acquainted, came around in a new suit of clothes, making calls on his friends. When I congratulated him he said he petitioned to have the amount in cash that other inmates were allowed for tobacco. This cash bought the suit of clothes, and he felt so proud of them that he was granted his liberty to go and see his friends. The ten cents a week may be all right. In fact, I like the idea; but in this age of progress can not our public officers think of some better incentive to hold up before these poor unfortunates than to suggest to them this sum is given to purchase tobacco with? I congratulate the managers of the Paris jail, and hope others may be moved to follow their example.

THE ARMY CANTEEN.

We clip the following from that grand agricultural home journal, the *Rural New-Yorker:*

> The so-called "army canteen" or government rumshop comes up for discussion frequently. Congress abolished the canteen several years ago, not because the army authorities or congressmen generally wanted to, but pressure from temperance people became too great to be resisted. Now there is an effort to compel Congress to change front and re-establish the "canteen." The New York *Times* puts the case as follows:
>
> > If one asks why, then, does not Congress authorize what all the experts agree to be so desirable, the only answer is that Congress goes in fear of a number of misguided persons who know nothing about the matter, and who have no right to an opinion upon it. If these people would kindly mind their own business, and refrain from trying to impose their ignorant views of the subject upon the law-making body, the canteen would be restored without opposition.
>
> We are not arguing about the canteen now. We do not need to. It is surrounded by the worst collection of human hornets' nests that ever waited for a stirring-up. Whoever touches it will need the longest pole that a politician ever tried to handle. The way Congress was forced into this action on the "canteen" question is a good object-lesson. When farmers were fighting against the oleo fraud they were told in much the same way to mind their own business, and not "impose their ignorant views upon the law-making body." Somehow these "misguided persons" kept at it, and the "law-making body" found that it must listen or be cut up and put together again. It listened and acted! So it was with rural free delivery of the mail, and so it will be with a parcels post and the exposure of the wire-fence humbug. What a world this would be if the common "misguided people" would only mind their own business, and let the politicians run things to suit themselves! Somehow the people are coming to see that, among other "ignorant views" of public matters, one worth thinking about is the fact that this "law-making" body is the servant, not the master, of the people! The postage-stamp is the weapon of freedom in this country.

Good for the *Rural!* If this thing keeps on, we shall soon have a government "of the people, by the people, and for the people."

A TESTIMONIAL TO THE GOOD WORK THE ANTI-SALOON LEAGUE IS DOING.

> The *Wine and Spirit News* says, "The Anti-saloon League has accomplished more than any other organization formed in a similar time. It will capture the church, the church will capture the state; then God have mercy on the rest of mankind, if we are permitted to live at all."

We are exceedingly obliged to our friends the enemy for this splendid tribute paid to our organization. I suppose no one will for a moment doubt its truthfulness, coming as it does from the very worst enemy the Anti-saloon League has. Dear brethren, we do not propose to let saloon-keepers live at all *as* saloon-keepers; but we do propose to give them all the assistance we possibly can in some honorable business that is for the benefit of humanity in general.

THE NEW SPENCER SEEDLESS APPLE.

I notice our agricultural papers are cautioning their readers about paying big prices for a tree of the above apple. In some cases they have been sold as high as $3.00 each. Of course, we are glad to welcome a new thing; but let the experiment stations test it first. We are told by those who are unbiased that the apple is hardly average in quality, that it has quite a little core in all specimens, and in some one or more seeds. A newspaper clipping has been sent me that seems to have come from the Toledo *Blade*, from which I extract the following:

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* We notice by the papers that the drouth during the latter part of November is so severe in Kentucky that several of the great distilleries have been compelled to shut down for want of water. (How sad it is to think that the supply of "Kentucky whisky" is likely to be curtailed!) Now, why did not Bro. Hicks tell us of this remarkable and wide-spread drouth during the latter part of November? He might at least have said, "Something very remarkable" will happen about this time. And, come to think of it, it is "something remarkable" that he did *not* say it.

> The seedless apple was produced by John F. Spencer. He has been growing trees for seven years in an experimental way, which have been examined by the Department of Agriculture, at Washington, and pronounced not only a seedless and coreless apple, but an entirely new species of apple.

Now, although the above does not say the apple is of good quality, it would be inferred; and we should be very glad to know if the Department at Washington has really given it the above indorsement. Appearances at present would indicate it may ultimately be classed with mushroom and ginseng growing, so much advertised to help poor men and women earn money at home.

A CLEAN FARM PAPER.

Are you interested in having one for your family to read? If so, write for a

Free Sample Copy of the Modern Farmer.

¶ It is clean and helpful on every page, and does not contain whisky, patent-medicine, or fake ads. It is just the paper to put in the hands of your children, if you want them to live honest and upright lives, and love their home surroundings.

BEE-KEEPERS' CLUB.

Modern Farmer, one year	$ 50
Silk Front Bee Veil	50
Gleanings in Bee Culture, one year	1 00
Langstroth on Honey Bee	1 20
American Bee Journal (new only)	1 00
	$4 20

¶ All of the above only $2.50; first two, $ .50; first three $1.25; first four, $2.10. New subscribers for the A. B. J. can substitute it for Gleanings if they wish. Renewals for A. B. J. add 40 cents more to any club. Western Bee Journal can be substituted for either bee paper. No changes will be made in any of these offers. Write for OTHER CLUBING OFFERS, and a price list of bee supplies very cheap.

E. T. ABBOTT, St. Joseph, Mo.

SPRAY PUMPS

The Pump That Pumps

SPRAY PUMPS

Double-acting, Lift, Tank and Spray PUMPS

Store Ladders, Etc.

MYERS

Glass Valve

HAY TOOLS of all kinds. Write for Circulars and Prices.

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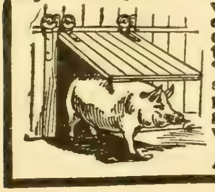
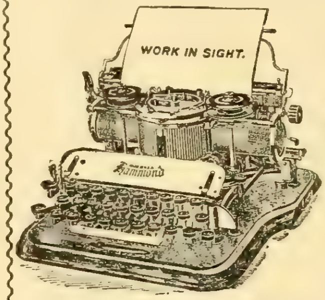


with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, - Ohio.

It's Not Your Neighbor's Fault



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Money in Bees for You.
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F. H. Farmer, 182 Friend St. Boston, Mass.

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One and one-half story Hive, $1.00; Sections, Hives, Berry Baskets and Crates by the Car Load.
Wholesale and retail. Send for free list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

Wants and Exchange.

WANTED.—Second-hand extractor and hives for cash.
E. BRUBAKER, 14 N. Third St., Phil.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange Odell typewriter, nearly new, for honey; or will sell it for $12.
DEAN FERRIS, Peekskill, N. Y.

WANTED.—To exchange a $50 American fruit evaporator for a Barnes buzz-saw or for a 360-egg Cyphers incubator, or for $40.
J. BEAM WINGERD, Chambersburg, Pa

WANTED.—Refuse from the wax extractor, or slumgum. State quantity and price.
OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange a $25.00 hot-air 200-egg size nearly new Reliable incubator and outdoor brooder for a Barnes foot-power saw, or offers.
CLOVER NOOK FRUIT FARM, Chambersburg, Pa.

WANTED.—Parties who intend to change location to come to Central Kansas, Saline County. Salina is a great commercial center; several wholesale houses already established; several colleges. Write for my price and description of real estate.
J. DUNCAN, Immigration Agent Missouri Pacific Ry., Salina, Kans.

WANTED.—To exchange double-barrel shot-gun for one pair of minks. Any person in the trap business will please correspond with me.
Address 216 Court St., Reading, Pa.

WANTED.—To exchange modern firearms, for incubators or bone-mills.
WM. S. AMMON, 216 Court St., Reading, Pa.

WANTED.—To sell, or exchange for bee-supplies (Root's goods), 10 pit-game stags and pullets; eight months old, and nice chickens. For more information write to M. C. MAY, Timbo, Bedford Co., Va.

WANTED.—To exchange bees, queens, or extracted honey for a 2½ or 3 h.-p. gasoline-engine and buzz-saw.
THE HYDE BEE CO., Floresville, Texas.

WANTED.—To exchange incubator and homer pigeons for honey.
G. ROUTZAHN, Biglerville, Pa.

WANTED.—Combination foot-power circular saw.
S. V. REEVES, Haddonfield, N. J.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
ED. YOUNG, Boonville, Mo.

WANTED.—To exchange 200 fine medical books (no use for them) for bees and supplies. Write to
DR. BALL, Plainfield, Ct.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. HAGEN, 1632 Blake St., Denver, Col.

Help Wanted.

WANTED.—A young man to take charge of 240 stands of bees in Wewahitchka, Calhoun Co., West Florida. Must understand taking comb honey. Want best of references—prefer recommendations from A. I. Root Co.
S. S. ALDERMAN, Wewahitchka, West Florida.

WANTED.—Active young man who has had some experience with bees, to work in apiary in summer, and general work around farm and shop in winter. Steady work the year round to the right party.
CHAS. ADAMS, Route 4, Greeley, Colo.

WANTED.—Young man who is thoroughly capable of taking charge of apiary, and understands introducing and breeding of queens. Can furnish employment the year round to a good man.
W. P. SMITH, Penn, Lowndes Co., Miss.

WANTED.—Help with our bees; steady position for the right man with experience. Give particulars first letter.
THOS. C. STANLEY & SON, Manzanola, Col.

Situations Wanted.

WANTED.—Position as apiarist the coming season, west or south preferred. Thirty-six years' practical experience. Correspondence solicited.
M. W. SHEPHERD, Interlachen, Fla.

WANTED.—Position by a strong young man to assist in apiary in the States or Cuba. No bad habits.
WELLESLEY WALSH, Port Marie, Jamaica, W. I.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—Melilotus (sweet clover) seed, $2 per bu.
W. P. SMITH, Penn, Lowndes Co., Miss.

FOR SALE.—Bees, full colonies, three-frame nuclei, and queens. Car load lots a specialty.
THE HYDE BEE CO., Floresville, Tex.

FOR SALE.—Fox hounds and puppies. Hovey strain. Each one guaranteed. Enclose stamp for prices.
W. H. GIFFORD, 151 Franklin St., Auburn, N. Y.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

FOR SALE.—200 swarms of bees in No. 1 Langstroth hives, etc., residence, honey-houses, and small piece of land.
G. F. WILSON, Soldiers Grove, Crawford Co., Wis.

FOR SALE.—Slightly damaged 1½-story 10-frame Dovetailed hives, in flat. In lots of five or more at $1.25 per hive. G. B. Lewis Co.'s make. A great bargain. Satisfaction guaranteed.
LEWIS C. & A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—Gladioli bulbs. These bulbs produced the flowers exhibited at the St. Louis World's Fair for 80 days.
L. F. DINTELMANN, Belleville, Ill.

FOR SALE.—100 stands of bees in good condition; also 80 acres of land, all under irrigation, near a town.
J. B. SUMMERS, Berthoud, Larimer Co., Col.

FOR SALE.—2000 colonies of Italian and Holyland bees. Three-frame nuclei a specialty, and queens. Carload orders solicited. Prices on application.
THE HYDE BEE CO., Floresville, Texas.

FOR SALE.—Cheap, two Iowa, 200-chick size, hot-air brooders. Write JOHN L. FUNK, R. F. D. 1, Tiffin, O.

Try Me

and see if queens raised by a little boy, 14 years old, are not as good as any. I have been brought up in the queen-rearing yards. Untested, $1.00 each; $4.25 for six; $9.00 per dozen. Safe arrival and satisfaction guaranteed. Money-order office Oakville, Texas.

IVES ATCHLEY, LAPARA, LIVE OAKS CO., TEXAS.

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail postpaid, on receipt of price

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed. and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.]		[Price without postage.
8	Bible, good print, neatly bound	20
10	Bunyan's Pilgrim's Progress**	40
	Christian's Secret of a Happy Life,** 50c; cloth	1 00
3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*	10
1	Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper	5
2	Same, board covers	20
5	Same, words and music, small type, board cov.	45
10	Same, words and music, board covers	75
3	New Testament in pretty flexible covers	05

One-third off on all Gospel Hymns mentioned above.

5	New Testament, new version, paper covers	10
15	Story of the Bible **	1 00

Years ago, when Huber was a little boy, he got hold of this book and read it clear through, asking his mother questions without number all along through the book. When he got to the end he turned over to the fore part and commenced to read it through again. We laughed at him somewhat, but let him go on. But when he started the *third* time I remonstrated. Now, this illustrates what sort of a book this is. We sold hundreds of them; but finally, when the book got to be old, it was taken out of our book list. I do not know just why; but nevertheless orders have kept coming for that wonderful book by Charles Foster—the Story of the Bible. Almost any child will read it if he gets a chance; and who can tell the effect it may have in fixing his young mind upon things that are good and pure and true? By buying them in considerable quantities we are enabled to furnish such a large book (notice the postage is 15 cts.) for only $1.00.

4	Stepping Heavenward**	18

BOOKS ESPECIALLY FOR BEE-KEEPERS.

20	A B C of Bee Culture, cloth	1 00
	Bienen-Kultur, by Thos. G. Newman	25

This is a German translation of the principal portion of the book called "Bees and Honey." 100 pages.

	Bienenzucht und Honiggewinnung	50

Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.

15	Cook's Manual. cloth	1 00
5	Doolittle on Queen-rearing	95
	Dzierzon Theory	10
3	Foul Brood; Its Natural History and Rational Treatment	22
15	Langstroth Revised, by Chas. Dadant & Son	1 10
10	Quinby's New Bee-keeping	90
5	British Bee-keeper's Guide-book, by Thomas William Cowan, England §	95
5	The Honey-bee, by Thos. William Cowan	95
3	Merrybanks and His Neighbor, by A. I. Root	15
10	The Honey-makers, by Miss Margaret W. Morley	1 40

This is a story of the life of the bee. told in very interesting style—how it lives, gathers honey, and all about it. While clothing the general subject with an air of poetry, it seems to be entirely within the limits of known facts while attempting to deal with them. We believe it will give all thoughtful bee-keepers a greater liking for their business to read it. Probbaly it has more to do with the curious traditions connected with bees than any other book of the kind.

10	The Life of the Bee	1 30

Thos. Wm. Cowan, editor of the British Bee Journal, in his review of Maeterlinck's work, says: "Not since the appearance, in 1876, of Bucher's 'Mind in Animals' have we had a book about bees more charming, or one that we have read with greater pleasure, than Maeterlinck's 'Life of the Bee.'"

	Beetkeeping in Jamaica. By F. A. Hooper, Kingston, Jamaica. Paper covers	25
5	Forty Years Among the Bees. By Dr. C. C. Miller, Marengo, Ill	95
15	Modern Bee-farm. By S. Simmins. New edition; cloth bound	1 85

MISCELLANEOUS HAND-BOOKS.

5	A B C of Carp Culture, by Geo. Finley	25
5	A B C of Strawberry Culture,** by T. B. Terry.. New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.	
5	A B C of Potato Culture, Terry** New edition, revised & enlarged; paper, 45c; cloth, 68c, mail 75c.	

This is T. B. Terry's first and most masterly work.

8	Barn Plans and Out-buildings*	90
	Canary Birds, paper	50
2	Celery for Profit, by T. Greiner**	25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

15	Draining for Profit and Health, Warring	85
8	Domestic Economy, by I. H. Mayer, M. D.** ...	30

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10	Fruit Harvesting, Storing, Marketing, etc	75

It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexpert in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, $1.00.

	Farming with Green Manures, postpaid**	90

This book was written several years ago; but since competent labor has got to be so expensive, and hard to get, many farmers are beginning to find they can turn under various green crops cheaper than to buy stable manure, and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops, and keeping up the fertility, by a similar treatment, on our ten-acre farm.

7	Farm, Gardening, and Seed-growing**	90
10	Fuller's Grape Culturist **	1 15
5	Garden and Farm Topics, Henderson**	60
12	Gardening for Pleasure, Henderson*	1 10

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it." I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price $2.00.)

12	Gardening for Profit**	1 10

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts (Retail price $2.00.)

8 | Gardening for Young and Old, Harris**.......... 90

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants.......... 20

This is by Henry A. Dreer, author of the book "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse Construction, by Prof. Taft** ... 1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft**........1 15

This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is $1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper*.......... 20
5 | Gregory on Squashes, paper*.......... 20
5 | Gregory on Onions, paper*.......... 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen.......... 05
5 | Home Pork-making; 125 pages, illustrated...... 40

I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

15 | How to Make the Garden Pay**..........1 35

By T. Greiner. Those who are interested in hot-beds, cold-frames, cold green-houses, hothouses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price $2.00.

| How we Made the Old Farm Pay—A Fruit-book, Green.......... 10

interest that characterize its author, T. Greiner.

10 | Irrigation for the Farm, Garden, and Orchard* 85

By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

3 | Maple Sugar and the Sugar-bush**.......... 25
4 | Peabody's Webster's Dictionary.......... 10

Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use Them; in paper covers.......... 30
6 | The same in cloth covers.......... 65
| Nut Culturist, postpaid..........1 25

3 | Onions for Profit**.......... 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

10 | Our Farming, by T. B. Terry**.......... 75

In which he tells "how we have made a run-down farm bring both profit and pleasure."

If ordered by express or freight with other goods, 10c less.

8 | Practical Floriculture, Henderson.*..........1 10

10 | Profits in Poultry.*.......... 75
10 | Small-Fruit Culturist, Fuller.......... 75
2 | Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown.......... 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

2 | Sweet Potatoes; Forty Years' Experience with. By Waldo F. Brown **.......... 08

This little book, by a veteran teacher at our farmers' institutes, ought to be worth many times the price to everybody who grows even a few sweet potatoes in the garden. It also gives full particulars in regard to handling and keeping this potato, which is difficult to keep unless you know just how.

10 | Talks on Manures*..........1 35

By Joseph Harris. Written conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

5 | The New Rhubarb Culture**.......... 40

Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book, for the lessons taught indirectly, in regard to forcing other crops besides rhubarb. Publisher's price 50c.

2 | Treatise on the Horse and his Diseases....... 5
5 | Tile Drainage, by W. I. Chamberlain......... 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5 | Tomato Culture.......... 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Vegetables under Glass, by H. A. Dreer**...... 20
3 | Vegetables in the Open Air*.......... 20

This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle.......... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects for the Microscope**.. 47
8 | What to Do, and How to be Happy while Doing It.......... 65

The above book, by A. I. Root, is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages, cloth.

8 | Same, paper covers.......... 40

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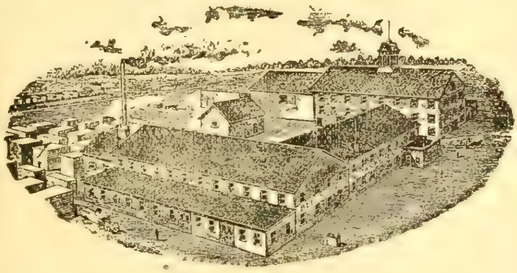

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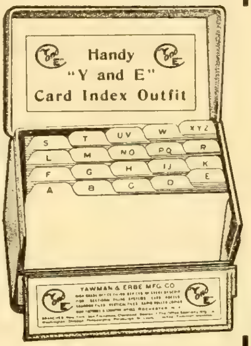
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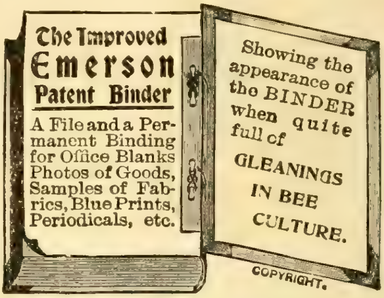
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